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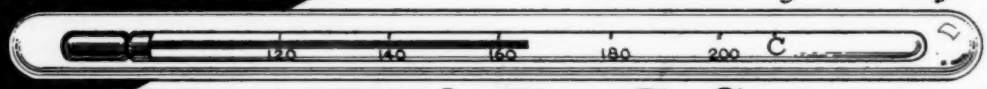

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A Paper read at the Congress of the Royal Institute of Public Health, held in Bordeaux on June 4th.

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PROFESSOR OF CLINICAL PATHOLOGY, R.N. MEDICAL SCHOOL, GREENWICH.

IT has been my fortune during the past decade to have had exceptional opportunities for studying disease outbreaks in ships and schools, both as a clinician and a laboratory worker. I have therefore chosen for my subject some of those factors which govern the constantly changing balance between man and the microbes that depend on him. The laws that control the character of an infectious disease and regulate its distribution in time and space are of paramount importance to all medical officers, or indeed to any one, who is employed in trying to conserve the public health. The time at my disposal forces me to be somewhat brief and dogmatic; and I shall only discuss one or two aspects of the subject which I have had especial opportunities of studying.

Some of the evidence, experimental and otherwise, which will be used to support the theories I wish to bring forward has not yet been published in detail, but I hope it soon will be.

MICROBIC DISSEMINATION AND DROPLET INFECTION.

All organisms must arrange for their dispersal in space and time, or else cease to exist. In fact, an adequate means of dissemination is one of the biological hall-marks of a successful species. In the case of the disease-producing microbes and other dependent organisms which inhabit man, dissemination means the infection of fresh human hosts, often as cases of or carriers of disease. A parasite which fails to arrange the transport of its offspring to another host commits race suicide.

I am only going to discuss here one important method of dissemination which is used by microbic parasites—that is, "droplet infection." Flügge, in 1897, first drew attention to the fact that microbes could be transported over short distances in small droplets expelled in talking, coughing, or sneezing. A study of the experimental work since done on this subject leads to the following conclusions. Infection by means of droplets generally only takes place at very short distances, in spite of the fact that microbes can travel over 30 feet from their source of origin by this method. But at such distances the infected droplets are in very low concentration. As one would expect, the smaller the room the higher the concentration of infective droplets that can be produced in the air, other conditions being the same. Within half an hour of being released into the air, the vast majority of droplets settle out of it by force of their own weight. My own experiments confirm the above observations, but there are one or two other important points about the mechanism of droplet infection which up to the present do not seem to have attracted very much notice. These points may perhaps be most easily grasped if I describe one or two experiments among some I have lately been doing. Probably the most important thing to realise about the dispersion of droplets is that there are two distinct mechanisms. The first one is well-illustrated by this experiment. Two Petri dishes of agar medium 6 inches in diameter were fixed vertically upright 1 foot and 4 feet away from the mouth of a subject who had previously rinsed his mouth out with a suspension of *Bacillus prodigiosus*. The Petri dishes were coughed at, and then immediately covered. After incubation the near plate produced 28 red colonies of the index organism, whereas no red colonies appeared on the other Petri dish, which had been 4 feet away from the cough. This experiment illustrates the propulsive effect of the cough how it soon expends itself, but is able to immediately distribute a heavy concentration of droplets to a distance of 1 foot but unable to throw them as far as 4 feet.

In the next experiment, under ordinary conditions of ventilation, some of the organisms which had been released at one end of a room 40 feet long were able to infect Petri dishes which had been left exposed for one or two minutes at the other end of the room. At the time of the experiment there was no obvious draught, the doors and windows were all shut, and only one small ventilator, which during the experiment was acting as an exhaust, remained open. This ventilator caused an imperceptible current of air down the room, and the infected droplets were borne on this air current to the exposed Petri dishes. Under similar conditions, if the bacilli were released in the centre of the room, and the plates placed at each end, only the plates at the ventilator end were infected. That is to say, the droplets only spread with the wind. With the ventilator shut, the air currents were apparently lighter and more variable in direction, because in this case the microbe-laden droplets spread in both directions, but much more slowly.

These experiments show the two distinct mechanisms in the dispersion of droplets by talking, coughing, or sneezing. First, the cough produced a jet which is projected almost instantaneously to a distance of a foot or two when the air resistance quickly stops it. This jet contains all the heavier drops of mucus or saliva, and sometimes even obvious lumps of phlegm. The heavier particles practically drop to the ground at once, but the lighter droplets can float on the prevailing air currents for as long as half an hour, and be carried to comparatively great distances. Once pointed out, the mechanism of droplet infection is seen to be merely a matter of common sense. Any smoker can easily demonstrate the mechanism of air-borne infection for himself—blow out a mouthful of smoke, the smoke proceeds as a dense jet for two or three feet, when it is brought up rather suddenly by the resistance of the air; a localised cloud is then formed, which diffuses slowly through the room floating in the prevailing air currents. This cloud of smoke becomes less and less dense the further it gets away from the source of its origin. The short-range jet of heavy droplets is the usual means by which so-called "contact" infection is acquired. The best example of the practical application of this principle is seen in the "bed-isolation" treatment of infectious diseases. Owing to the impossibility of throwing a heavy dose of infective material more than a few feet it is possible to nurse two or three different infectious diseases in the same ward without any appreciable danger from cross-infection, provided the beds are far enough apart. The lighter droplets, it is true, may be borne considerable distances in the convection and diffusion currents of air, but, as will be seen later, are in such low concentration that they rarely are able to supply a dangerous dose of infectious material. This, at least, is the case with many diseases and under ordinary conditions of ventilation.

It might be argued that the above observations do not apply to the actual distributors of pathogenic organisms—namely, real cases and carriers—because a very high concentration of a harmless germ, *Bacillus prodigiosus*, was used as an index organism. However, bacteria-laden droplets are real things and can be actually caught and examined directly. Microscopic glass slides, if coughed at and stained, will show droplets of many sizes, containing leucocytes, epithelial cells, and in many instances, if produced by suitable subjects, will be seen to contain literally hundreds of organisms of various kinds. If instead of coughing at a slide a Petri dish of culture media is used instead, the same organisms as were

to be seen on the slide will often grow, and it is interesting to note that what seem to be separate isolated colonies on the plates often prove on examination to be compound colonies containing two or more types of organism. For example, in one subject streptococci, Gram-negative diplococci, and diphtheroids could be seen in the directly-stained droplets. On a plate prepared from the same subject many compound, though apparently simple, colonies grew, some of which contained the same three organisms as were seen in the directly-stained droplets. Therefore a colony on a "coughed-at plate" marks the site where a droplet has fallen, and the droplet may have contained numerous bacteria of several kinds. Even a colony that appears to be a pure culture is unlikely to have arisen from an individual bacterial cell. Another piece of work by Teague [1] showed diphtheria bacilli could be disseminated by droplets. Forty-three diphtheria cases coughed at plates held in front of their mouths and in 28 instances diphtheria bacilli were recovered from the plates.

Perhaps the most impressive demonstration of the transport of microbes by air in droplets is an experiment that Prof. W. Bulloch informed me he often did years ago. After rinsing his mouth out with a suspension of *B. prodigiosus* and coughing, he was able to recover the same organism from the mouth-washings of a subject who was, at the time of coughing, 40 feet away from him.

DOSAGE AND THE VELOCITY OF INFECTION.[2]

It is a common observation that some diseases are easier to catch than others—for instance, small-pox is more infectious than leprosy. The degree of infectiousness of a microbe may to some extent be an inherent property of its specific protoplasm, and it is possible that this character of infectivity may vary in different strains of the same species of microbe. On the other hand, apart from any difference in the quality of the infectious material, the quantity or dose of infectious material received must be of paramount importance in determining whether or not a microbe will be able to establish itself in the host species.

Webster,[3] as a result of his studies in mouse typhoid, considers the number or dose of bacilli to be the most important factor in deciding what type of illness the mouse contracts, and he does not think there is much evidence that the quality of infectivity, per se, varies to any marked degree in the same strain of bacilli under different conditions. Anyhow, animal experiments show that, in many infections, a large number of microbes are necessary before illness or death can be produced. For example, in diphtheria about 50,000,000 diphtheria bacilli are necessary to kill a guinea-pig. However, this dose may be much larger or smaller according to the strain of bacillus used.

Directly a quantity or dosage factor is admitted to a place of importance in microbial infections it becomes absolutely essential to introduce a time factor. For example, suppose 100 is the minimal number of organisms that will enable an infection to be produced in a certain individual; it immediately follows that any number less than this "minimal infective dose" will be rendered harmless by the defensive mechanisms of the recipient host.

Imagine in this case where 100 is the minimal infective dose that 50 microbes are received at one time, and another 50 at a later time, and so on; what will happen? If the intervals between these subinfective doses are long enough for one to be destroyed before a succeeding one is received, obviously in these circumstances no infection is possible. But suppose the intervals between the doses are not long enough for all of the 50 microbes in each dose to be rendered harmless before another dose is received, a certain number will be left over and added to the succeeding dose. And if the process continues and doses, each harmless in itself, go on being received at these short intervals, active organisms will steadily accumulate till they reach the minimal number or "critical dose" necessary to break down the primary defences of the individual and thus start a definite illness.

We are now in a position to combine dosage and time into a velocity and can enunciate the following principle. The velocity at which microbic infection is contracted is the resultant of two other velocities—namely, the velocity at which the defence mechanisms of the host can destroy microbes, and the velocity at which the host receives the microbes. Suppose a certain individual can deal with 50 bacteria per hour; unless he receives more than 50 of these organisms in an hour he can never be infected. Suppose that the "critical dose," which is the minimum number of bacteria necessary to produce infection, is 100. Then, if this individual receives 100 bacteria in a single dose, he immediately becomes infected, but if he receives more than 50 per hour but less than 150 per hour it must depend on how long he remains under the same conditions as to whether or not a critical dose can be accumulated. Suppose he receives 75 microbes per hour. At the end of the first hour there will still be 25 active microbes, since he can only deal with 50 per hour. During the second hour he receives 75 more microbes, to which must be added the 25 left over from the first hour; of this 100, 50 are destroyed, which still leaves 50 active microbes unaccounted for at the beginning of the third hour. Thus in this special instance microbes are accumulating at the rate of 25 per hour, which is the velocity of infection under these conditions. The "critical dose" was postulated as 100, so in this case the time necessary to acquire an infection would be 100 divided by 25—namely, four hours. Should the same man only remain three hours in the same environment he would only have acquired 75 active bacteria, which is 25 less than the number necessary for infection, and on leaving the bacterial environment his natural defences could account for these during the next hour and a half. In the above example, V the velocity of reception was 75; U the velocity of destruction was 50. The velocity of infection was V minus U—namely, 75 minus 50, that is—25. Let M represent the critical, or minimal infective, dose which was 100 in our example. Then if T is the time necessary to produce infection the whole principle relating time to dosage in the production of infection can be expressed as a "pseudo—mathematical equation: $T = \frac{M}{V - U}$. The time necessary to contract infection equals the minimal infective dose divided by the velocity of infection.

It must be understood this formula only envisages a principle which I am convinced is of great importance in understanding the spread of disease. No exact numbers can ever be given to the above letters which are all variables altering from minute to minute and which are bound to be different for each type of parasite and host. In a host possessing a high degree of resistance to infection, the velocity of destruction and the critical dose will both be of much greater magnitude than in an ordinary individual. The velocity of reception will vary with the distance and the character of the source of the microbes, which is generally a patient or a carrier. The atmospheric conditions, the ventilation, and size of the room also play a part in determining the velocity of reception in the case of those microbes which are disseminated by droplet infection.

An example of how the velocity of infection can explain certain phenomena will be given from the study of an epidemic of diphtheria and scarlet fever. In a school which contained both day boys and boarders there were over 300 infections among the 1000 residents; whereas there was not a single case of scarlet fever or diphtheria among the 100 day boys, who freely mixed with the boarders at play and in class. The chief, and practically only difference between the residents and day boys was the fact that the latter slept in their different homes while the former slept, a hundred or more together, in large dormitories.

The study of the incidence of scarlet fever and diphtheria cases and their spread in the school produced evidence that showed the disease spread chiefly from boy to boy in the dormitories; there was little evidence to show much infection was contracted at play, meals, or in the class rooms. It is the absence of any morbidity at all among the day boys that requires an explanation. A lower morbidity in the day boys than in the residents would have easily been explained by less time spent in the school, and therefore fewer opportunities of contact with the distributors of infectious material. This complete escape of the day boys is explained by supposing that the hour to hour and a half spent in the class-room, and shorter periods of still closer contact with carriers and early cases while at play, did not give the prevailing velocities of infection long enough time to produce illness. Any germs the day boys may have collected were easily accounted for on their returning home, or in other intervals of absence from the bacterial environment. On the other hand, the residents spent ten hours continuously in beds with a distance of 4½ feet between their centres, therefore a velocity of infection, which would have been innocuous in the hour or two spent at work or play, had sufficient time to infect during the ten hours spent in the sleeping quarters. In this school *time* was the main factor which controlled the epidemic, and which accounted for a 30 per cent. morbidity in one group of boys against a complete absence of morbidity in another group.

The principle of velocity of infection may be a little difficult to grasp at first, or, rather, the necessity for the introduction of the time factor not fully realised. A further hypothetical example may make things clearer. With certain individuals and in certain types of microbic disease, of course, not all, long continuous stays in an infectious neighbourhood may be more dangerous than many shorter periods spent in the same or an even more infectious environment. Take, for example, a man who travels to his office every day with a friend who is a disease carrier. Every day they spend half an hour in close proximity to each other in the crowded tube, but the man never gets infected from his friend. One day these two men go to a theatre together and sit out a three-hour performance. The man now contracts the disease his friend carries. The velocity of infection was not high enough to cause illness in the half hour spent in the tube, but was great enough to do so in a period six times as long, spent in the theatre. This hypothetical case is purposely chosen as it has been stated, on what grounds I do not know, that disease is more often contracted in places of amusement than in trains and public vehicles; yet, in the aggregate, most people spend more time in public vehicles than at entertainments, and if disease is really more frequently contracted in the latter than in the former, an explanation is easily furnished by the theory of the velocity of infection.

HOST RESISTANCE AND EPIDEMIC IMMUNITY.[2]

In the previous paragraphs mention has been made of the host's defence mechanisms to microbic attack, and to avoid complicating the discussion, up to the present I have treated these mechanisms as if they were a constant factor. Of course, this is not so, as infection depends as much on the power of resistance of the host as on the dosage and infectivity of the microbe. In fact, I think most bacteriologists would say the host's power of resistance was a more important factor than either dosage or infectivity in acquiring a disease.

A population can loosely be divided into susceptible and immune persons. Although this is a convenient convention, yet it is not logically correct. There are few individuals who are completely susceptible, as literally this would imply that a single microbe was sufficient to initiate an illness in them. On the other hand, many of those who are ordinarily immune may, under special conditions, succumb to a sufficiently massive dose of infectious material. Immune and susceptible are, however, convenient terms, provided it is realised that they stand for a very high and very low degree of resistance to microbic infection. The division of the population into two distinct groups may in fact be nearer to the truth than appears at first sight, because there is some reason to believe that, in the majority of people, specific resistance to disease is either high or low—intermediate grades of resistance not being so common. The degree of resistance, even of an individual, is by no means constant and may show periodical variations under different conditions. McCarrison[4] has shown that vitamin deficiency may permit auto-infection by a microbe, which had formerly been living in a state of balance with its host, before the faulty diet was instituted; as he puts it, "the carrier becomes a patient." Thus faulty nutrition can lower resistance. Further examples are the effect of fatigue and chill in lowering resistance to influenza and pneumonia.

The production of an increase of specific resistance to a specific microbe will now be considered. It is one of the oldest observations in medicine that in many diseases one attack confers immunity to a subsequent attack of the same nature. This immunity is very much greater and more lasting in some diseases than in others; for instance, contrast mumps and influenza in this respect. Can an immunity of this specific nature be acquired without actually suffering any symptoms of ill-health? At the present day it is an acknowledged fact that resistance to typhoid fever can be increased by injecting the causative bacillus under the skin, or even by swallowing it. This fact is made use of in the services to control enteric disease by the routine use of prophylactic vaccines.

In a preceding section it was pointed out that in certain environments an individual must often be receiving small doses of microbes, which he is able to destroy without getting ill, provided they are not received too often or too quickly, or, in other words, provided the velocity of infection is small enough. The specific proteins of the microbes in these sub-infective doses are absorbed or may be carried by phagocytic cells into the host's tissues, where there is no reason why they should not stimulate the production of antibodies just as efficiently as microbes injected with a syringe. This process is Nature's method of vaccination and may account for much acquired immunity to infection or disease.

This theory of auto-vaccination, as a cause of immunity, receives powerful confirmation from a quite independent source. Digby,[5] in some work that deserves far more attention than it has yet received, produces morphological and embryological evidence to show that the submucous lymphoid tissues (which include the tonsils, Peyer's patches, and the appendix), are not mere vestigial survivals and therefore useless to all animals, except surgeons and pathologists, but that they are organs with a definite function. This function is the collection and absorption of samples of all the microbes in their neighbourhood. Wandering cells from these lymphoid tissues carry the microbes back into the body for the express purpose of stimulating specific defence mechanisms against a further invasion. The very frequency with which these organs suffer local microbic invasion, such as occurs in tonsillitis, appendicitis, and enteric fever, merely indicates that they have fallen victims to their duty by accumulating an overdose of the pathogenic bacteria in their environment. As a result of his researches Digby evolved this theory of natural auto-vaccination, which was independently arrived at by myself as the result of the observations on diphtheria shortly to be referred to. It is now easy to realise that ordinary prophylactic vaccination may only be an imitation of an adaptive defence mechanism, which host species have evolved as their answer to the attacks of parasitic microbes. Walcott[6] has shown that the bacteria were present in pre-Cambrian times, at least 50,000,000 years ago, so that the species in existence to-day are only

those who survived in the age-long struggle for existence with the bacterial environment.

Although this theory of auto-vaccination may not be acceptable to some minds, yet that a population can gain a large increase in resistance to diphtheria in the absence of all symptoms of illness, and even when the community is free from cases of clinical diphtheria, is a proved fact. In diphtheria, by the use of the Schick test, it is possible to distinguish the immune from the susceptible. As possibly some may be unfamiliar with the Schick test, the rationale of the test had better be explained The Schick reaction is performed by injecting a minute dose of diphtheria toxin into the skin. If the subject is a negative reactor no redness appears at the site of injection because the injected toxin is neutralised by the diphtheria antitoxin which is present in the blood of those immune to diphtheria. In subjects with a low degree of resistance to diphtheria the injection of the toxin causes an inflamed red patch, because there is no, or insufficient, circulating antitoxin to neutralise the diphtheria toxin which has been injected. For practical purposes Schick positive reactors are susceptible, and Schick negative reactors are immune, to diphtheria.

The results of the Schick tests on the boys of a school showed that during a diphtheria epidemic the majority of the susceptible individuals in this school population acquired diphtheria antitoxin in their blood and thus became immune without suffering from any illness. Further than this, bacteriological investigations showed that when the epidemic had subsided there followed a still greater epidemic of carriers of virulent diphtheria bacilli. During the two years following this school outbreak of diphtheria some 250 "Schick-positive"—that is, presumably susceptible—boys were introduced into this diphtherial environment and about half these boys subsequently became "Schick-negative"—that is to say, they were practically incapable of contracting clinical diphtheria. This immunity was acquired without the boys being ill or, in most cases, without ever having had a chance of contact with a case of diphtheria.

Now this fact, for it is a fact whatever the explanation may be, demonstrates a factor in epidemiology whose importance cannot be exaggerated—namely, that it is possible, in the absence of all obvious illness, for a community as a whole to increase its degree of resistance to a potentially pathogenic parasite. More often than is realised unseen epidemics of "disease carriers" are occurring sometimes without any cases with symptoms to attract attention to them. In many infections undetected carriers must be much more common than cases showing symptoms. In epidemic meningitis, for example, there must be at least 100 carriers to every case of meningitis. In the school which has been used so frequently for examples there were at least ten carriers to every case of clinical diphtheria. These observations should convince us that the carrier state of infection is, under certain conditions, more natural or normal than the definite disease. In addition, under certain conditions, as yet not completely determined, epidemics of carriers can occur without any cases of ill-health to attract attention to them. These unseen epidemics of carriers, in the way just described, are capable of increasing the resistance of the population as a whole to the disease that the carried microbe sometimes causes. In the school under consideration, without the employment of bacteriological tests on healthy boys, no one could have guessed that with a virulent carrier-rate sometimes as high as 10 per cent., and with a complete absence of diphtheria morbidity, susceptible boys were becoming immune to diphtheria at an average rate of about 10 per 100 per month. The increase of resistance to a specific disease parasite thus acquired by a population may conveniently be termed "epidemic immunity." Notice that "epidemics of immunisation" may or may not be accompanied by epidemics of disease.

At present diphtheria is the only epidemic disease which produces an easily identified antitoxin in the blood of the immune, and therefore is the easiest infection to study as regards the proportion of immune to susceptible in samples of the population. However, though the evidence cannot be so direct, many observations indicate that other infections obey the same biological laws. There is no time to discuss this question much further, but in the case of influenza in a school where the morbidity was 25 per cent., the incidence of disease was inversely proportional to the length of residence in the school. This indicates that those groups of boys who had spent the greatest time in the school environment had acquired an increased resistance to attack by the causative organisms of influenza, even if there was no history of their ever having had influenza. Again, during the influenza epidemic there were two obvious waves of the disease in His Majesty's Fleet,[7] a mild first wave followed by a deadly second one. Some ships escaped the first wave; this was a doubtful blessing, as the second wave struck them with more than double the force it expended on those ships which had had the immunising experience of the first wave. In the latter ships the morbidity and mortality was less than half that in the former.

Another example of immunity in absence of symptoms in seen is the case of tuberculosis. During the late war the incidence and severity of tuberculosis was much greater in the coloured native troops, recruited from regions where tubercle is practically unknown, than among British soldiers, all of whom had probably acquired some resistance to the tubercle bacillus, because in England everyone must frequently inhale subinfective doses of tubercle bacilli.

To summarise, the *fact* is this, that many people can increase their resistance to a specific disease without suffering from it. The *theory* used to explain this fact is that in a bacterial environment subinfective doses of organisms are frequently received. These doses are absorbed by the tissues and stimulate the production of antibodies in a way similar to the ordinary injection of a bacterial vaccine. This theory, which may or may not be acceptable, certainly deserves very careful examination in view of the importance of "epidemic immunity."

THE VARIATION OF PARASITIC VIRULENCE.

The last subject I will deal with is that of parasitic virulence as an adaptable rather than a specific character. For the present purpose virulence can be defined as the extent to which a parasite can injure the host.

The question as to what constitutes the difference between a species and a variety, though of fascinating interest, is too big to treat at length here. Darwin himself admitted species was a convenient conception but incapable of a hard-and-fast definition. A recent authority, Prof. A. Dendy,[8] describes a species thus: "A species is a group of individuals, closely resembling one another, owing their descent from a common ancestor, which has become more or less sharply separated from all other coexisting species by the disappearance of intermediate forms." In this definition the phrase "closely resembling" leaves it to the individual biologist to decide for himself how closely two organisms must resemble each other in order to be two varieties of one species, or to be two distinct species. In this discussion a species will mean a group of parasites which will remain constant in certain characters over the period of human observation. In this respect a meningococcus is a distinct species from a staphylococcus, as even if in the past both had a common ancestor, the intermediate forms have now disappeared. Varieties, on the other hand, have quite recently descended from a common ancestor, and under suitable external stimuli from the environment can revert to the "type species" or change the one into the other within a reasonably short time. Any variations which may take place in pathogenicity

or virulence are especially relevant to our subject, and if adaptations they must chiefly occur in the natural habitat of the parasite—to wit, man himself, where, owing to the great technical difficulties, it can rarely be possible to furnish direct proof of their occurrence and still more so of their non-occurrence. It does not seem reasonable, therefore, to consider that virulence is, in all cases, a permanent specific character; still more is this so when we find that in nearly every instance the natural habitat of a pathogenic microbe also supports organisms which are similar in all respects to the disease germ except that they lack virulence. Serological characters, on which the bacteriologist rightly depends so much in identifying disease organisms, are obviously the result of contact between host and parasite. Serological characters are also correlated to some extent with virulence, and nowadays many authorities do not consider the serological individuality of otherwise similar organisms is sufficiently constant to establish a species. For example, four serological varieties of meningococci are usually described, but they are probably only fluctuations within the species, and if the proper stimuli were known, and could be applied, doubtless one type could change into another.

Numerous observations show that species vary directly in response to changes in their surroundings. These fluctuations or adapted variations are often of a quantitative rather than of a qualitative nature. For example, as was seen in the previous section, the species man can be divided into two varieties, the one with a high, the other with a low power of resisting the attack of the diphtheria bacillus, and in this case the resistant variety of the human species is probably an adaptation to an environment containing diphtheria bacilli. The present tendency, I think, favours changes in host resistance rather than variable microbic virulence as the chief factor in the causation of periodic epidemics or changes in the type of infection. On the other hand, the founder of modern bacteriology, Pasteur, considered the chief determining factor was virulence. In some cases pathogenicity may be caused by low host resistance and in others by high parasitic virulence, but most illnesses are probably due to a combination of both these factors.

It seems logical to expect adaptive variations to occur as much in the parasite as the host, especially in the case of the bacteria, who owe their prominent position in the living world to their great plasticity, which has enabled the bacteria to colonise every kind of environment. Superficially virulence appears to be a character that increases the fitness of the organism to live in its environment, and therefore some writers actually refer to loss of virulence as degeneration. Under certain conditions, in a rapidly changing environment, and when susceptible hosts are numerous, increased virulence may be an advantage and a temporary adaptation to meet special circumstances. But in general marked virulence will ultimately become a handicap in three ways. First, by the destruction of susceptible hosts the parasite destroys its own environment. Secondly, a rapid severe illness limits the movement of the host and at the same time limits the distribution in time and space of the causative parasite. Thirdly, virulence may stimulate so much resistance on the part of the host that the parasite possessing it is destroyed in cases where a less virulent strain might have been tolerated. Therefore a permanently virulent parasite will be at a great disadvantage in the struggle for existence, compared with one that can vary virulence to fit different environments. On the whole, virulence shows a lack of adaptation to environment and therefore tends to be eliminated by natural selection.

In many bacterial species virulence, estimated as the power of killing experimental animals, is easily altered in the laboratory. Only two interesting instances of this need be mentioned. Griffiths [9] was able to greatly attenuate the virulence of pneumococci by growing them in a medium containing the homologous antibodies; in other words, by keeping this parasite in contact with the serum of an immune host. The reverse experiment of raising pneumococcal virulence was achieved by Felton and Dougherty,[10] who repeatedly transferred large numbers of the cocci at the time of their maximum vitality into a fresh bulk of nutrient medium and thus kept them continually in an environment favourable for rapid multiplication. Under these conditions the organisms' virulence for mice increased over a million-fold. Just as vaccine prophylaxis is most likely only an imitation of the natural process of acquiring immunity, so it is not improbable that the above experiments also imitate the methods of altering virulence that actually happen in nature. Some observations have been obtained that seem to support such a theory. Towards the end of the aforementioned diphtheria epidemic, though the carrier-rate for virulent diphtheria bacilli was always less than 5 per cent., and a series of Schick tests showed the number of susceptible boys to be only 14 per cent., yet under these conditions membranous diphtheria was still able to spread in the school, as is shown by the fact that 30 cases subsequently occurred. Two years later further Schick tests and throat swabs revealed that in some samples the carrier-rate for virulent diphtheria bacilli was as high as 10 per cent., whereas those boys who gave Schick-positive reactions had increased to 24 per cent. It must be mentioned that the increase in susceptibility of this population was due to the introduction of Schick-positive new boys at the rate of about 50 per term. The boys once immune did not become susceptible again during the period of observation. Thus, after the complete cessation of a diphtheria epidemic, in a population where all other conditions remained unchanged, except that the number of susceptible hosts and the number of carriers of virulent bacilli both greatly exceeded the numbers that existed during the time when clinical diphtheria was still prevalent, no case of the disease had been seen for many months.

The explanation suggested for these observations is as follows. Susceptible boys must have been three or four times as numerous just before the onset of the diphtheria epidemic as during its final phase; therefore the diphtheria bacillus in its passage from boy to boy met conditions, where its activity was unchecked by host resistance, much more frequently at the beginning than at the end of the epidemic. Such conditions imitate to a great extent the method of raising pneumococcal virulence previously mentioned and favour rapid multiplication and maintenance of virulence. Towards the end of the diphtheria epidemic the ratio of immune to susceptible hosts increased up to 6 to 1, so that the diphtheria bacilli had many more opportunities of infecting immune boys as carriers than of causing cases in the few remaining susceptible boys. In these circumstances the greater amount of contact with immune hosts gradually caused a loss of pathogenicity, just as in Griffiths's experiments the pneumococcus lost its virulence in presence of serum from a specifically immune animal. With the loss of pathogenicity the diphtheria bacillus became a less efficient immunising agent and permitted the aggregate susceptibility of the school to increase—a speculation which receives support from laboratory observations on the relative immunising power of virulent and avirulent strains of the same organism. If such a process did take place it may have been aided by artificial selection of the less virulent organisms in this way. All those boys who were infected with diphtheria bacilli and had symptoms were isolated in hospital till free from the specific bacilli, whereas a very small proportion of the total number of symptomless carriers were detected and isolated. Therefore if some strains of the bacillus had a greater tendency to produce cases rather than carriers they got less chance of spreading than other strains, who may have tended to produce carriers rather than cases of diphtheria. A recent series of Schick tests have shown that at the present time, in spite of the prevalence of virulent carriers, the immunity of the population has passed its maximum and is on

the decline. The susceptibility, or rather the number of Schick-positive boys in the school, is actually greater now than it was when diphtheria was still capable of spreading. It would be interesting to see what would happen if things were left alone—Will all the carriers disappear, or some persist and, as the number of susceptibles increase, regain the power of causing membranous diphtheria, or must new virulent strains be introduced from another environment before a fresh outbreak of diphtheria can occur? The condition of affairs in the school is such now that it seems unjustifiable not to anticipate a fresh outbreak of diphtheria by protecting the Schick-positive boys with toxin-antitoxin mixture. Unfortunately, if this is done it prevents watching the progress of the diphtheria cycle up to the onset of a fresh epidemic. In other infections besides diphtheria the proportion of those with high, to those with low, resistance to attack may be an important factor in determining whether disease will spread or not.

Topley and Wilson,[11] in their experimental epidemics among mice, found that according as the proportion of mice protected by vaccination was large or small, the mouse typhoid bacillus would or would not spread easily among both the protected and non-protected individuals of the mouse population. Topley. rightly emphasises the difference between individual immunity and the immunity of a population as a whole—"herd immunity" as he aptly terms it. Whether "herd immunity" is greater if all the population have a moderate degree of resistance or if some are very resistant and some susceptible is an important problem that yet requires an answer.

According to the thesis that I have been trying to develop the degree of herd immunity determines ultimately the disease-producing power of the biological agents of illness. In influenza, for example, there is little evidence of any lasting immunity conferred by a previous attack, yet naval experience showed that the disease spread less easily and was less malignant in a population that had recently experienced a previous epidemic. That is to say, the degree of "herd immunity" had certainly been increased, even though little difference could be noted as regards individual immunity.

Returning to our main theme of virulence as an adaptive variation, it must be admitted that one of the great objections to accepting altered virulence as a factor in epidemic periodicity, anyhow in the case of diphtheria, is that no difference (worth mentioning here) could be detected in the killing power for guinea-pigs, between bacilli isolated from membranous throats of the epidemic cases and those obtained from carriers more than a year later. To my mind this is not an insuperable objection. The balance between host and parasite is delicate. Parasites when transferred to hosts they do not normally inhabit sometimes exhibit marked and sudden variations, and general biological considerations rather incline one to expect that a recently acquired functional and negative quality, such as loss in the degree of virulence to the specific host, might be wiped out immediately on transferring the parasites to a non-specific host such as the guinea-pig. However, it has to be confessed this speculation is rather crushed by Webster's[12] experiments with mouse typhoid epidemics. This observer was unable to find any alteration of the killing power of the mouse typhoid bacillus when the conditions of experiment were varied, and in this case the same host was used both for the production of the epidemics and for measuring the virulence of the parasite. Should, however, virulence be used in the sense of power of injury to the hosts, rather than the power of killing an animal with a small single dose of microbes, it is quite easy to imagine possibilities where, using the former definition, virulence may be low, while at the same time virulence in the latter sense may be high. For instance, suppose infectivity, per se, decreases—a velocity of infection that formerly was sufficient to cause cases may now only be suitable for the production of carriers; or again, some strains of the same parasite on reaching the mucous membrane may multiply more superficially and slowly than others and permit the host to gain immunity in time to prevent symptoms. These pure speculations are merely introduced to show the complexity of the subject, and that the fact of not being able to detect variation in killing power of a parasite is no argument against some change having occurred in its power of producing disease. The evidence taken as a whole, in my opinion, justifies the following tentative hypothesis.

The reaction of the parasite to increase in host resistance is decrease in virulence. The reaction of the host to parasitic virulence is increase in resistance.

Should this hypothesis be true one would expect that, in a more or less stabilised environment, given time, a position of equilibrium would be reached between the attacking power of the parasite and the defensive power of the host. And in wild life, undisturbed by man, such is generally the case. For example, the wild game of Africa tolerate, without any apparent harm, the same trypanosomes that create havoc among man's domestic animals. In other cases the struggle to attain mutual adaptation by host and parasite, not the struggle between host and parasite, which is another thing altogether, may proceed even further than tolerance and succeed in producing true symbiosis, in which state one partner cannot live its full natural life without the other. A good recently-described example of symbiosis is that of the wood-eating termites, which are inhabited by intestinal protozoa without whose help the termites are unable to digest the wood.[13] In wild animals the struggle for existence is so keen among their offspring that any degree of pathogenicity on the part of a parasite will act as a severe check on the survival of those individuals affected. Sick animals, in general, are soon eliminated, and with them their virulent parasites.

Man, owing to the rapidity with which he has evolved the most efficient, even if yet far from perfect, adaptive mechanism intelligence, is the only host animal which steadily increases in numbers, and his parasites and domestic animals therefore share the increase with him. Man for ever interferes with the environment and mixes up the living conditions of himself and other organisms. By these means the balance between himself and his parasites is continually upset. The penalty for this upset is disease and epidemics, which are due to the parasites or the hosts not being able to adjust themselves quickly enough to the new conditions in their environment. Man, with his domestic animals and plants, though no more highly parasitised than many wild animals, yet in comparison to the latter almost monopolises parasitic disease.

Seventeen years ago Sir Ray Lankester[14] drew attention to this important, though somewhat neglected, fact, and I cannot do better than close this paper by quoting his words: "It is a remarkable thing—which possibly may be less generally true than our present knowledge seems to suggest—that the adjustment of organisms to their surroundings is so severely complete in Nature apart from Man, that diseases are unknown as constant and normal phenomena under those conditions. It is no doubt difficult to investigate this matter, since the presence of Man as an observer itself implies human intervention. But it seems to be a legitimate view that every disease to which animals (and probably plants also) are liable, excepting as a transient and very exceptional occurrence, is due to Man's interference."

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SOME CLINICAL OBSERVATIONS ON HELIOTHERAPY IN PULMONARY TUBERCULOSIS.

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(With Illustrations on Special Plate.)

THE sun-cure is now, thanks to the work of Bernhard and Rollier in Switzerland and Gauvain in England, generally admitted to be the most satisfactory method of treating the large majority of cases of localised or surgical tuberculosis—i.e., tuberculosis of the bones, joints, glands, and serous membranes. On the other hand, the sun treatment of pulmonary tuberculosis has fallen into disrepute and is generally considered dangerous by experienced medical officers at sanatoria. This is because sun treatment has, in many cases in the past, been tried on pulmonary cases in sun-boxes open only to the south or under glass, where a greenhouse effect has been produced, and because febrile cases have been submitted to such conditions which overheat in place of cooling the body. Moreover, a febrile case is fighting against active disease. Products of tissue destruction produced by the bacterial invasion of his tissues are being absorbed and his immunising power is being excited thereby. What he at the moment lacks is sufficient natural response. To sunburn him and throw extra products of tissue destruction into his blood is then wrong. His immunising powers are already over-taxed and cannot be further aroused. He needs, if only such could be had, an active anti-tuberculous serum taken from an animal immunised against the tubercle bacilli and in open cases against the other bacilli which produce secondary infection of the lung. People afflicted with pulmonary tuberculosis have been told, and are sometimes still told, to go to the south of France, the Swiss Alps, or some other sunny part of the world, and to sit about there in the sun, and they will soon be all right again. They take such advice, often with disastrous results. It must be recognised that indiscriminate and uncontrolled use of the sun in pulmonary tuberculosis is fraught with danger and must be vetoed. If applied wrongly and to the wrong type of case, sun treatment may set up flaming activity in a lung where the disease was, perhaps, only smouldering, and would have settled down under ordinary climatic and hygienic treatment.

Method of Treatment.

The point, then, is first to select those cases likely to be benefited by a course of heliotherapy, and, secondly, to endeavour to control the dosage and application of the treatment in each instance. First of all, it should be clearly recognised that it is not a hot sun which is required, but pleasantly warm sun-light and cool air. The treatment should not be carried out in an enclosed space, which is liable to become stuffy and hot, but should be done, as far as possible, in the open, with cool fresh air circulating freely around the patient.

The cool, dry air of the Swiss Alps in winter is one of the most beneficial factors in the proper application of the sun treatment in cases of pulmonary tuberculosis. The patients can be exposed with a loin cloth on or in a thin bathing costume on an open roof with their lounge chairs placed on the snow; the winter Alpine sun will gratefully warm them while they turn now their front and now their back to it. At the same time their metabolism will be stimulated by the cool air, and they will breathe cool dry air which enhances the flow of blood lymph and secretion in and through the respiratory membrane. The cool air, too, will moderate the action of the sun-rays on the skin. This method has been tried by us with good effect and has proved a valuable supplement to general treatment. We have designed shelters on the roof of the sanatorium with walls just high enough to give privacy and open to the sky. It is in the winter, when the snow has fallen, that the ultra-violet rays of the sun are least strong, and the cooling power of the air most in evidence, and it is in the winter, therefore, when the best results from this gentle moderated heliotherapy are to be expected. The winter sun is warm enough and even too warm sometimes at midday. On the other hand, the summer sun is very powerful round about midday. It must be used in the cool early morning hours when the sun is low in the heavens and its rays mostly absorbed by the atmosphere.

Types of Disease Amenable to Heliotherapy.

Heliotherapy may be tried in cases of tuberculosis of the lungs, where the disease is of the localised, single-focus type, thereby approximating in character to surgical tuberculosis. In cases where there is no fever and in which the activity of the disease has become arrested, but which are "sticking" and still have sputum containing tubercle bacilli, much benefit may be derived from such a course of sun-baths; the healing process is stimulated and the sputum and spitting of tubercle bacilli may cease.

Where the disease is of the scattered type, and especially where there is a liability to fever, either periodical or continuous, sun-bathing is dangerous and should not be attempted. Cases which easily auto-inoculate themselves and those who are prone to hæmoptysis should avoid exposure to the sun, but such cases are benefited by exposure to the cool air and ultra-violet radiation of the sky. From exposure to the sun, on the other hand, good results have been obtained in those instances where the disease is of the pleural type, with much thickening of the pleura and contraction of the chest; the thickening and adhesions are absorbed and cleared up, the lung expands and functions again, and there is a great general improvement in health. Another type which does well is the bronchial asthmatic.

As a general rule, it may be stated that where there is smouldering activity of the tuberculous process, as evidenced by fever, a tendency to auto-inoculate on exertion, hæmoptyses and other signs and symptoms of activity, then sun-bathing must be left alone, and the ordinary treatment of rest and open air carried out. Sun-bathing may be used as an additional stimulus to a case which is becoming cured, but in which progress is slow.

Sun-bathing consists in becoming gradually accustomed to withstand the rays of the sun, and should be commenced slowly, and increased regularly according to the needs of the patient. The head and neck should be kept covered. Sun-burning should be avoided, slight erythema followed by pigmentation, not burning, being what is required. When once pigmented and well on the road to cure the patient can stand more and more exposure to the sun. If the patient becomes fatigued, sweats much, or has a definite febrile reaction, the time of exposure to the sun must be cut down. Dark-haired people become accustomed more easily than fair ones to the sun's rays; in fact, some fair and red-haired people find it impossible to undertake a course of sun-baths. Toleration largely depends upon the amount of pigmentation that occurs, but the whole procedure, especially in pulmonary cases, should be a very tentative one, and most carefully controlled and watched. While much good may be done by sun treatment, this, if carried out wrongly, may cause a great deal of harm.

We are indebted to Mr. P. G. Sutton, radiographer at the English Sanatorium at Montana, for the photographs.

(Continued from preceding page.)

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THE MORBID ANATOMY AND PATHOLOGY OF SPRUE,

AND THEIR BEARING UPON ÆTIOLOGY.

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(*With Illustrations on Special Plate.*)

ONE of the outstanding problems in tropical medicine at the present day is the true pathology and ætiology of sprue. All attempts up to the present to isolate a specific agent or organism have failed, nor has any really clear idea of the true pathology of this mysterious disease been formulated. This is a question of primary importance, for sprue is a widespread tropical disease, and in certain endemic areas, as in India and Ceylon, the number of sprue cases amongst European residents appears to be much greater than was formerly the case.

The *geographical distribution* of sprue has peculiarities which may have a very distinct bearing on its ætiology. Sprue is common in the Eastern Tropics as well as in South America, Southern United States, and North Australia. On the other hand, as has been remarked, but not, I think, sufficiently emphasised, sprue is entirely absent from Tropical Africa. Another point of prime importance is the predilection of the disease, in endemic areas, for the European in preference to the light or dark-skinned Asiatic.

Relation to Pernicious Anæmia.—A third point is the close clinical resemblance of some cases of pernicious anæmia to sprue, especially as regards their onset.

Pathology of Sprue.

Existing accounts of the morbid anatomy and pathology of sprue are very meagre. Much of the older literature treats of naked-eye changes in the intestines and organs which are obviously the result of post-mortem decomposition. It has been realised for some time that the true pathology of sprue cannot be based upon the appearances of cases dying of atrophy after a wasting illness prolonged over many years. The post-mortem appearances seen in these latter cases are the result of long starvation, and probably the early essential lesions of the disease have long since disappeared.

Emphasis has mostly been laid upon the marked attenuation of the small intestine, and the complete stripping of the mucous membrane. From time to time the liver, on account of the remarkable wasting this organ undergoes, and the pancreas, on account of the fibrotic changes observed, have been incriminated. But clinical observations lend no support to these views. On clinical grounds one is at least justified in surmising that the primary lesions are in the small intestine, and that the well-known ulcerations of the mouth and tongue are of a similar nature. In order to ascertain whether this is true it is necessary to examine at autopsy early and rapidly fatal cases of sprue. I have always been of the opinion that in early cases only will the true ætiological cause be discovered.

We have in bacillary dysentery an almost analogous case. We know that in this disease the appearance of the intestines in the chronic stage bears no resemblance to the acute necrotic, congested gut of the early infection, so that it would be impossible, without extensive experience, to say that the one was the outcome of the other. We further know that, as fibrotic and atrophic changes in the gut walls take place, so the ætiological cause—the dysentery bacillus—entirely disappears. So may it be in sprue.

Evidence is now accumulating that the essential primary lesion of sprue is an ulceration of the small intestine, chiefly affecting the lower end of the ileum. It is possible that in the mild cases the ulceration is superficial, leading merely to a catarrhal state of the mucosa, while in more serious cases the ulceration may be more extensive and involve the submucous tissue of the gut, and may, on occasions, perforate the gut wall and lead to general peritonitis and death, as in the two instances cited below.

Previous Cases.—Faber[1] in 1904, and Justi[2] in 1913, have published accounts of carefully conducted autopsies, in which a specific ulceration of the small gut was found, together with widespread destruction of the villi. Fischer and von Hecker[3] in 1922 published a study of a case dying of acute sprue, in which small linseed-shaped ulcers were present in the mucosa of the lower jejunum and ileum. In the cæcum numerous attenuated patches were present. No micro-organisms were demonstrable in the ulcers, nor could yeast cells be cultured from the lesions. In the bowel wall a diffuse hæmochromatosis, due to lipofuscin, was present. These investigators consider the ulceration of the bowel as specific of the disease.

Two Cases Described.

Within the last three and a half years I have had the somewhat exceptional opportunity of observing two rapidly fatal cases of sprue, and of making complete investigations with both of them.

CASE 1.—An ex-soldier, aged 40, who had served with the Yeomanry in Salonica, Palestine, and Syria. This is the first case of this disease to be recorded from those countries. A year after demobilisation, in the early part of 1920, diarrhœa commenced; this was of the usual type—i.e., white, frothy, liquid stools passed in the early hours of the morning, together with progressive emaciation. The tongue and mouth symptoms appear never to have been well marked; the patient complained mostly of great sensitiveness of the mucous membrane of the lower lip, the tip and sides of the tongue. When first seen on 7/9/20, the patient was in a very emaciated condition, his voice was husky, the skin was dried, the abdomen was distended with gas, the liver dullness was much reduced, being barely perceptible to percussion.

He was admitted to hospital on Sept. 9th, and was placed upon purely milk diet. The stools then rapidly assumed typical sprue-like characters, being semi-solid, large, white, and greasy. In spite of the milk treatment, the patient continued to lose weight and to suffer from acute indigestion and flatulence. His weight, which was normally 12 stone, fell to under 7. Various changes of diet were tried, without any ascertainable effect. At the beginning of October dark patches appeared on the tips of both toes, which resembled incipient gangrene. Subsequently he complained of great pain in the right iliac fossa, and on several occasions vomited large amounts of undigested food. On Nov. 25th there was little doubt that general peritonitis had set in; an exploratory laparotomy was therefore performed, and general plastic peritonitis was found present throughout the whole abdomen, but no perforation could be located. Death occurred two days later. The blood pressure, which was systematically taken, was observed to fall from 120 mm. Hg systolic, till it reached 90 mm. Hg. The gastric juice contained no free hydrochloric acid. The blood examination showed a slight degree of anæmia, the hæmoglobin being 90 per cent., the red cells 4 million. Little assistance was obtained from sigmoidoscopic examination, which showed a diaphanous condition of the lower bowel and superficial reddening of the mucous membrane.

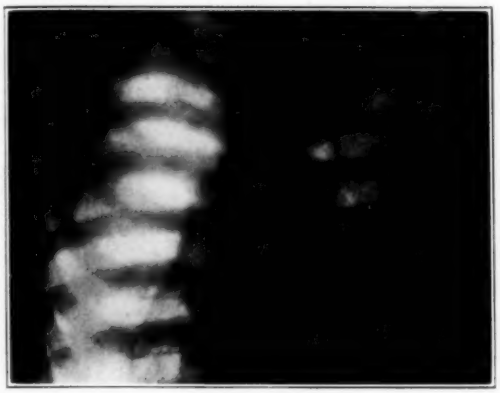
Post-mortem Examination.—General atrophy of all the organs, and especially of the liver, was noted. The small intestine was distended with gas, the walls were transparent, and there was one large ulcer in the ileum six feet from the ileo-cæcal valve, situated on the surface of the bowel opposite the mesenteric attachment. It measured one inch in diameter and had perforated in two places where recent plastic peritonitis had set in, and had become adherent to neighbouring coils of small intestine. The contents of the small bowel were similar to the stools observed in life.

The microscopical appearances of the organs were in the main similar to those described in the next case.

CASE 2.—An engine-driver, aged 41, from Ceylon, where he had resided for 13 years. His illness commenced in June, 1920, with sudden explosive early morning diarrhœa and the passage of frothy, light-coloured stools. In August, 1920, he returned to England, but the diarrhœa continued, and in fact got much worse. It was accompanied by great emaciation, and in October—i.e., four months after the commencement of the illness—the tongue symptoms set in, and at the same time small yellow and very painful aphthæ made their appearance on the sides and tip of the tongue, as well as on the mucous membrane of the mouth.

DRS. B. HUDSON AND L. HILL: HELIOTHERAPY IN PULMONARY TUBERCULOSIS.

FIG. 1.



Case 1.—Radiogram taken Dec. 27th, 1922, showing thickening of pleura on left side.

FIG. 2.

Case 1.—Taken April 16th, 1923, after a course of sunning, showing great improvement.

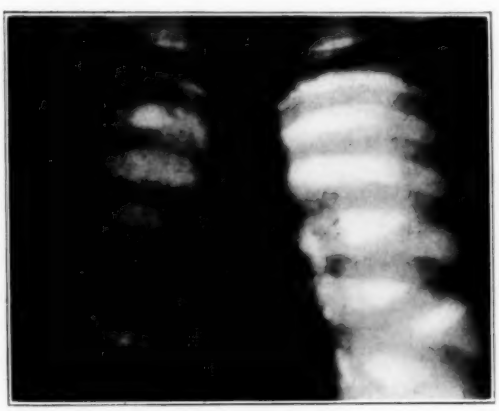
FIG. 3.

Case 2.—Taken March 24th, 1922, showing extensive pleural thickening over whole of right lung.

FIG. 4.

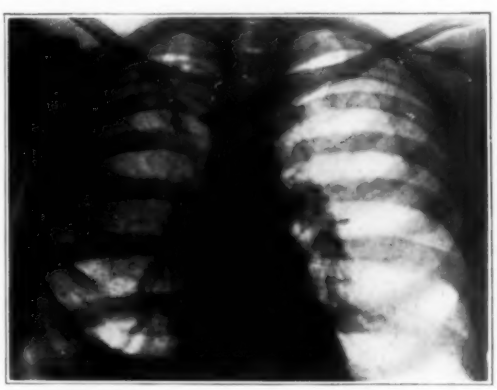
Case 2.—Taken Nov. 10th, 1922, showing improvement after a course of heliotherapy.

FIG. 5.



Case 3.—Taken March 7th, 1923.

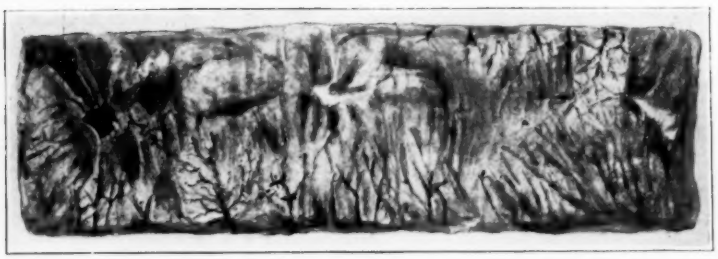
FIG. 6.



Case 3.—Taken Nov. 20th, 1923.

DR. P. MANSON-BAHR: MORBID ANATOMY AND PATHOLOGY OF SPRUE.

FIG. 1.



From a drawing by the Author.

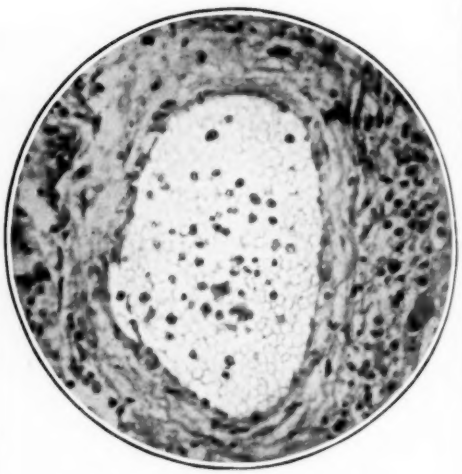
Lower portion of ileum, showing ulceration with production of patches of diaphanous and attenuated bowel. The enlarged and dilated nutrient vessels can be seen in the submucosa. The bowel is viewed as a transparent object.

FIG. 2.

Section through base of ulcer (camera lucida), showing deposition of lipofuscin, dilatation of capillaries, and round-cell infiltration. × 175. Arrows indicate the pigment-containing cells.

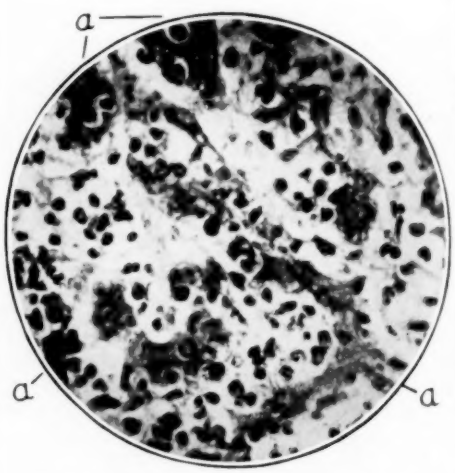
DR. A. DINGWALL FORDYCE AND DR. W. GRANT McAFEE: TENDENCY OF THE NEW-BORN TO JAUNDICE.

FIG. 1.



Hepatic artery packed with erythrocytes, showing also the increased numbers of nucleated cells—viz., erythroblasts, &c. × 400.

FIG. 2.



Liver showing surviving columns of atrophying and degenerating hepatic cells (*a a*), and the great increase of nucleated cells in and about the sinusoids. The erythrocytes have disappeared owing to post-mortem change. × 500.

He was admitted to hospital on Oct. 14th, 1920. The condition on admission was as follows: He was a big-made man, who had obviously lost weight—according to his statements already 2 stone—and now weighed 9 st. 6 lb. The tongue was pointed, glazed, and intensely hyperæmic. There was one typical sprue ulcer, almost the size of a threepenny-piece, at the tip. The mucous membrane of the mouth was engorged, especially at the inner surface of the under-lip. The abdomen was distended with gas, and the stools were large and quite typical of the condition. The patient looked extremely ill, and his skin was loose and inelastic. Secondary anæmia was present in a marked degree; hæmoglobin 70 per cent. normal; red blood corpuscles 3½ million. The stools, numbering between three and four in 24 hours, were large, frothy, and light-coloured, weighing 20 to 30 oz., and in every way typical. The urine was highly coloured and contained urobilin. The physical examination of the patient revealed little save some diminution in liver dullness and tympanitic distension, especially of the small gut. On being placed on milk treatment immediate improvement took place, increase of weight, and quiescence of symptoms. After six weeks in hospital he was discharged to convalescence, but returned on Jan. 4th, 1921, with an exacerbation of the condition. He was then desperately ill, and the diarrhœa continued in spite of several kinds of treatment, with loss of weight approximately averaging 3 lb. a week. The diarrhœa varied, but was apt to recur suddenly without any apparent cause. The stools became liquid and curdled, being very offensive and greenish in colour, and from time to time contained thick mucus and blood. Sigmoidoscopic examination of the rectum revealed merely a superficial pink hyperæmia. Towards the end the stools became more bilious, while pigmented spots appeared around the hair follicles on the abdomen, and hæmorrhages on the back of the hands and forearms. At this time the patient complained of great pain in the lower part of the abdomen. Throat symptoms were also noted, the gullet appeared raw, and the patient had great difficulty in swallowing. Considerable diminution of the liver dullness took place, reaching merely from the eighth rib to the costal margin. Death took place suddenly on April 28th, 1921. He then weighed 6 st. 7 lb.

Post-mortem Examination.—At autopsy, 12 hours after death, the skin was bright lemon-coloured, with entire absence of subcutaneous fat. Petechial hæmorrhages were present, especially on the arms and legs. On opening the abdomen peritoneal pus was found in the right iliac fossa. Small petechial hæmorrhages were noted in the posterior peritoneum, as well as on that covering the large intestine. General plastic peritonitis was noted in the pelvis as well as the last two feet of the ileum, which was hæmorrhagic and covered with solidified lymph; the descending colon and the rectum were in a similar condition.

The mucous membrane of the large gut appeared normal, and the surface was covered with thick viscid mucus. The mucous membrane of the cæcum was plum-coloured and partly hæmorrhagic. The main interest centred in the ileum. The mucous membrane was acutely inflamed, with diaphanous transparent patches. Twelve ulcers of varying sizes, situated on the surface opposite the peritoneal attachment, were found, separated from each other at regular intervals of about 9 inches. The greatest number of ulcers was found in a length of gut about 4½ feet. These ulcers were more or less of the same size, roughly oval in shape, with puckered, rolled margins, and hæmorrhagic bases. When held up to the light they were found to be translucent, and in all of them actual perforation of the bowel had occurred. In size they varied from 0·5 to 1 cm. (Fig. 1 on Plate). The ulcers had no relation apparently to Peyer's patches, which were normal in appearance. The upper part of the ileum and jejunum were slightly hyperæmic, and in the upper part of the jejunum one small ragged ulcer, 3 mm. in diameter and similar to those already described, was present. The mucous membrane for an area of 3 inches around this spot was inflamed. The mucous membrane of the duodenum showed catarrhal changes.

The fæcal contents of the intestinal canal were also of interest. The lower part of the duodenum and ileum were filled with light-coloured, fluid, sprue-like fæces, which were entirely odourless. In the large intestine the colour was similar, but they were more consistent and offensive. The mesenteric glands were enlarged, pink, and injected. As regards other organs there is little to note, save a diminution in weight, as shown by the following table: The liver weighed 34½ oz., spleen 4½ oz., lungs 17 oz., kidneys 4½ oz. each, heart 5 oz. The liver gave a marked blue ferrocyanide reaction, indicating that an extensive hæmolysis had taken place. The gall-bladder, which was collapsed, contained a few c.cm. of amber-coloured bile.

Cultures were made from all the organs, as well as from the mucus, throughout the whole intestinal canal, both in nutrient as well as in glucose broth. No yeast cells were seen or growth obtained from any of these situations. Scrapings were made from the ulcers themselves, and examined under a dark-ground illumination for the detection of spirochætes or other characteristic appearances without success. Tuberculous infection was definitely excluded. The tissues were all examined microscopically, of which the following is the report:—

Morbid Histology.—Tongue: There is an almost total denudation of epithelium, and the subepithelial papillary structures are irregular, with hyperplasia of the connective tissue. Brownish-yellow pigment is present, either as fine granules or in aggregated masses up to 10 μ and over. These are sparse in the deeper layers of the epithelium, more numerous in the subepithelial connective tissue. The larger individual granules are situated in the upper part of this tissue, the aggregations in the deeper layers. In the muscle area they are very rare, and, when present, are in the inter-fibrillar connective tissue, not in the muscle itself. The capillaries generally are congested.

Small intestine: Jejunum and ileum. Save at the site of the ulcerations, no general loss of surface epithelium appears to have taken place, though, on account of post-mortem changes, this point is difficult to determine. As I have already pointed out in my studies on this disease in Ceylon,[4] there is a general atrophy of the villi themselves due to fibrosis, and a diffuse round-cell infiltration of the whole of the mucosa. There is also a general fibrosis of the submucosa and dilatation of the capillary vessels. In the tissues underlying the ulcers are numerous granular masses of a yellowish-brown pigment (hæmofuscin), but beneath the lateral margins pigmentation becomes more scanty. In the tissue itself lymphocytes are the predominating cells, while fibroblasts are few, eosinophils scanty, and polymorphonuclears almost entirely absent. Masses of pigment can be distinguished in the neighbourhood of the muscularis mucosæ, where it is for the most part enclosed in endothelioid cells, the nuclei of which in some cases appear to have been displaced or destroyed by the accumulated pigment granules. Appropriately stained sections failed to reveal any micro-organisms, save in the superficial necrotic layer forming the base of the ulcer.

Pancreas: Is to all appearance normal; the cells and nuclei stain well, there is no infiltration, no atrophy of cells, and no pigment seen.

Liver: Some degree of fatty metamorphosis is seen in the periphery of the lobules, and in these parts also many cells contain a very finely granular yellowish-brown pigment. In certain areas all the cells show this, but here, too, the peripheral cells are much more densely packed with it. There is no increase of connective tissue, nor any indication of inflammatory reaction.

Kidney: Very little change. In some areas the epithelial cells stain badly—probably a necrobiotic condition. The vessels generally are congested, and a few of the convoluted tubules contain hyaline material.

Spleen shows increase in connective tissue, trabeculæ prominent. Vessels congested, and here and there are minute extravasations. Many of the pulp cells are filled with finely granular dark-yellow pigment, or with round masses similar to those seen in the small intestine. In some areas every cell contains this pigment. The interstitial tissue does not show any.

Large intestine: Does not show in this case any subepithelial vascular infiltration nor any pigment-bearing cells as recorded by Fischer and v. Hecker.

There is evidently a remarkable similarity in the gross pathological changes and finer histological details to the description given by the last-named workers. The essential anatomical lesion in sprue appears to be an ulceration of the small intestine which, if it continues long enough, leads to the complete atrophy of the villi, such as is observed in the chronic stage of the disease, and one may surmise that the aphthous ulcers which commonly occur in the mouth and on the tongue in sprue are part of the same pathological process. But probably the complete denudation of the tongue, the shrinkage of the various viscera, and the extreme atrophy of the small intestine which is seen in these cases are to some extent ascribable to malnutrition.

Pathological Lesions in Relation to the Clinical Phenomena.

Are the pathological lesions in these cases sufficient to account for the well-recognised clinical phenomena of sprue? First, as regards the stools, these are characterised by their large size, their gaseous character and absence of the customary fæcal pigment, or stercobilin. The bulk of the fæces can

be accounted for by the large amount of non-absorbed fat which they contain. Recent analyses seem to show that an explanation may be found in failure to absorb the fats already digested by the pancreatic juice. The total fat content of the fæces in sprue varies from 34–57 per cent.[5] (sometimes as high as 63 per cent., Willmore) of total fat in the fæces, a figure which is greatly in excess of the normal (15–25 per cent.), while the fatty acids preponderate over the neutral fats and soaps in a proportion of 3 : 1 or 5 : 1 (J. D. Thompson). The fat has therefore been digested, but cannot be absorbed through the villi of the small intestine; this may be due either to their actual destruction or to the chronic inflammation interfering with the passage of the digested fat into the lacteals. Sections of the small intestine show a widespread round-celled infiltration throughout the mucosa.[4]

Recently attention has been drawn to the close similarity between cœliac disease in children and sprue. The resemblance really lies in the stools, for in many other respects the two diseases are distinct. In cœliac disease[6] the essence is a mal-absorption of fat in the diet, probably due to a digestive fault. The fæces contain 30–80 per cent. of fat, of which the greater proportion, as in sprue, is a fatty acid. There is some evidence that in this disease the pathological lesion lies in an obstruction of the lacteals themselves, not in the mucosa, as in sprue.

It has long been known that cases of tabes mesenterica may pass copious greasy offensive stools somewhat resembling those of sprue. Ryle[7] has recently pointed out that the inability to absorb fats in this instance is to be ascribed to obstruction of the lacteals by tuberculous mesenteric glands, and it is probable that this is also the essential lesion in cœliac disease.

In complete destruction of the duct of Wirsung copious pale greasy stools are passed, and in this case the amount of unaltered fat in the fæces may rise to 50 or even 90 per cent.[7] of the total, while the neutral fats are greatly in excess of the fatty acids, but in this case stercobilin is present in the fæces, although its colour is masked by the fat. In pancreatic disease the diastatic test of the urine affords aid in diagnosis, but in cases of sprue I have investigated the diastatic value is invariably low, thus indicating that it is not the pancreas that is involved. The pale colour of the sprue stool is to be attributed to the excess of unaltered fats and fatty acids. The normal fæcal pigment stercobilin is present, but has become reduced, apparently by abnormal or excessive bacterial action, into a colourless compound, but which on oxidation rapidly becomes converted into brown pigment.[8] The appearance, size, and chemical composition of the sprue fæces, as well as the pigmentary changes, can, on the basis of our present knowledge, be ascribed to destruction of the absorption surface of the ileum, and to hurrying on the contents of the jejunum through the large gut.

Should this view be correct, and the main phenomena of sprue be attributable to a mechanical interference with digestion, then symptoms similar to those of sprue should be reproduced by other diseases involving the mucous membrane of the ileum. That this may be so is illustrated by the following case which, through the kindness of Dr. J. G. Willmore, I am permitted to quote. The case was generally regarded as one of sprue; the fæces were quite typical and contained 53 per cent. of fat. Later, as symptoms of intestinal destruction supervened, a laparotomy was performed, and a malignant growth of the ileum removed, after which the fæces resumed a more normal size and colour, and the fat content was reduced to 25 per cent. And, apparently in extensive tuberculous ulceration of the ileum, a similar fatty sprue-like stool is produced.

Secondly, as regards the anæmia. A certain degree of blood destruction is present in nearly every case of sprue; as a general rule, it is most marked in long-standing cases, and in them appears to be consequent upon the intestinal symptoms. In extreme cases the blood picture may resemble that of pernicious anæmia and is of the aplastic type. But, on the other hand, in some advanced cases anæmia is not always noticeable. It has been suggested that the presence of anæmia is dependent upon achylia. But it is not in every case of profound sprue-anæmia so far investigated that a normal or even excessive hyperchlorhydria is present; on the contrary, fractional gastric tests in the majority of ordinary cases give a normal acidity curve. (Recent analyses of my own cases.)

In my opinion the hæmolysis is consequent upon the ulceration of the small gut, and that a very considerable degree of blood destruction takes place in the gut wall at the base of the intestinal ulceration can be gathered from a study of microscopic sections (Fig. 2 on Plate), when destroyed blood pigment can be distinguished within the phagocytic cells. That a very active hæmolysis occurs in sprue can be judged by the ferrocyanide reaction in the liver, which was most intense in the two cases which form the basis of this study. I have also[11] previously remarked upon the presence of Russell's bodies in sprue tissues, especially in the spleen pulp; these bodies are regarded by Woodcock as the result of hæmatophagy and as possibly due to some specific hæmolysis, but, at any rate, they are present in tissues in which rapid blood destruction is taking place.

The Question of a Specific Organism.

Is there any evidence that a specific micro-organism is responsible for the specific lesions of sprue? The presence of yeast fungi in the intestinal contents, the buccal cavity, and fæces of sprue has attracted a considerable amount of attention. Originally these organisms were considered by Kohlbrugge as identical with *Monilia albicans*, a view I have always endorsed. At present I regard these organisms as merely a superimposed secondary infection, such as is liable to occur in any prolonged wasting disease, such as diabetes, tuberculosis, carcinoma, &c., and as by no means peculiar to sprue. Furthermore, I am of the opinion that a yeast infection in sprue is much more likely to occur within the tropics, and then only in advanced cases of this disease. It will be noted that in the two cases under review these organisms were entirely absent, both from the fæces during life and the viscera after death, although cultures on appropriate media were made under the most favourable conditions.

Ashford,[14] on the other hand, considers that sprue is a mycosis of the intestinal canal superimposed upon some food deficiency, and that the pathogenic agent is a specific species of yeast cell—*Monilia psilosis*, distinguishable from *Monilia albicans*—the thrush fungus. His theory is that in sprue there is a glandular deficiency in which the pathogenic fungus *Monilia psilosis* finds a congenial medium in which to multiply. This view has not received any great measure of support.

McCarrison[15] has shown that atrophic changes in the small intestine of monkeys may be produced by a vitamin-free diet, but, on clinical grounds, there is no evidence that the lack of vitamins plays any part in the production of sprue, at any rate, in Europeans in the East. Scott[16] has put forward, as a plausible hypothesis, that sprue may be due to an error of calcium metabolism. Many of the symptoms may be ascribed to calcium deficiency, which ultimately produces an ulceration of the small intestine and the passage of an excess of calcium salts in the fæces, and in a recent paper Ryle[7] ascribes tetany and other symptoms of cœliac disease (which are also common to sprue) to excessive excretion of the same substance. These suggestions, though somewhat indefinite at present, afford food for reflection, and indicate lines upon which future research should be based.

I am greatly indebted to Dr. H. H. Scott for critical examination of the histological specimens, while to Dr. H. B. Newham, C.M.G., Director of Pathology at the London School of Tropical Medicine, for the preparation of microscopic sections, and to Dr. A. L. Gregg, superintendent of the Hospital for Tropical

Diseases, for material assistance, my best thanks are due. Dr. J. G. Willmore has assisted me with suggestions based upon his own recent experiences of sprue.

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THE TENDENCY OF THE NEW-BORN TO JAUNDICE:

WITH REPORT OF A CASE OF GRAVE FAMILIAL JAUNDICE.

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(With Illustrations on Special Plate.)

IT is a universally recognised fact that new-born babies tend to become jaundiced; the reason for this fact is still to seek. There is peculiar difficulty in distinguishing between the physiological and the pathological in the new-born; the results of antenatal and natal environment are often apparently overwhelming—for a time, at least—and variations in either entail labile boundaries to the sphere of physiology. It appears that about one out of every two babies born is jaundiced within the first few days of life, and that, so far as can be determined, the presence of this jaundice in itself does not adversely affect the prognosis—i.e., that it is not evidently pathological. As explanation of the symptom of jaundice in these cases Hess[1] favours the work of Ylppo[2] as showing that it is hepatogenous in origin, and considers that a hæmatogenous origin can be excluded; Rolleston[3] favours the theory of a hæmolytic origin and adduces the work of McNee[4] with the van den Bergh test in support; and Ritter von Reuss,[5] while adhering to no particular theory, says, "Whether icterus neonatorum rests on a uniform ætiological basis, or whether it be the outcome of various factors, it is none the less justifiable to speak of icterus neonatorum as a definite entity owing to the peculiar tendency shown by the new-born towards this condition."

The symptom of jaundice is often met with in the new-born; its cause is still undetermined and possibly varies in different cases, a jaundice which is commonly regarded as physiological. Much more rarely this symptom is also met with as one expression of a serious pathological condition. Jaundice of grave significance—icterus gravis as distinct from icterus neonatorum or physiological jaundice—occurs as a result of one of three possible pathological conditions: (1) hepatic deformity—e.g., congenital obliteration of the bile-ducts; (2) infection—e.g., obvious sepsis—sometimes congenital syphilis; (3) hæmorrhagic disease of the new-born. Included in the second category are Buhl's disease or acute fatty degeneration of the new-born, and Winckel's disease or afebrile cyanosis and jaundice with hæmoglobinuria.

In all these cases jaundice, while a striking symptom and often the outstanding symptom, is but a subsidiary phenomenon in the systemic complex; and while in cases of gross deformity, disease, or infection the differentiation from simple icterus neonatorum may be easy, yet there are many borderline cases in which the diagnosis is often one of the greatest difficulty. We meet also with cases of habitual icterus gravis or grave familial jaundice of the new-born. Such cases are those of successive infants in a family becoming jaundiced very soon—a few hours to a day—after birth, dying in coma and sometimes with convulsions, and post-mortem examination failing to reveal a cause. This category, like most others dealing with neonatal jaundice, is somewhat indefinite. Ritter von Reuss (loc. cit.) "is doubtful whether we are justified in assuming a clinical uniformity of the cases." Several or even many cases in one family may result from various and different causes.

But whatever may be the cause—and here again are rival theories as to infection and primary functional abnormality of the liver—published reports support the contention that such a clinical entity exists. Rolleston,[6] in 1920, was able to collect 130 cases, and of these 100, or 77 per cent., proved fatal. He suggests that "in its most complete form the disease is hereditary, the mother becoming jaundiced during the pregnancies of jaundiced infants, and that the usual form is an incomplete manifestation of the morbid process."

Within the past 20 years there have been many publications on the subject, and many published cases do not appear justly to fall within the category. Thorling[7] rejects Rolleston's suggestion that in the fully developed condition the mother is jaundiced, and throws doubt on many cases accepted by him.* Of cases accepted by both authors are, among others, those of Auden[8] and of Busfield[9]—both striking instances. Auden describes "a series of fatal cases of jaundice in the new-born occurring in successive pregnancies." Out of 15 pregnancies there were four survivors—the majority of the children dying, jaundiced, within a few days of birth. Some, however, lived a few months, but none except the four survivors lived longer than eight months. In both this series and that of Busfield the pregnancies followed one another in quick succession and in both cases the first child was not affected. Busfield noted that with succeeding pregnancies there was greater tendency to early death of the infant. Auden was of opinion that "the disease is an example of an acute toxæmia, due to some profound chemical disturbance, rather than to the products of a bacterial infection."

Before and since that time various other theories have been advanced, but still we have no proof. An interesting post-mortem fact noted in many cases, but not in all, is the jaundiced condition of the basal ganglia of the brain, due to necrotic changes giving rise to imbibition of bile-pigment.

A Case of Grave Familial Jaundice.

At present we have little knowledge of the intra-uterine and labour conditions in these cases, and the following case is published as an additional item of information:—

Mrs. X. is one of a family of eight brothers and sisters. Her father died of cancer at the age of 59, and her mother died of influenzal pneumonia at the age of 69. She was the seventh child in the family and was born nine years before her father's death—while he was in good health. Of her four brothers, one was stillborn (the fourth child), one died, aged 15 years, of pneumonia, one is in good health and unmarried, and one is in good health, married, but has no children. She has three sisters. The eldest was slightly jaundiced at birth. She enjoys good health, is married and has one son, aged 17, in robust health. She has had no subsequent child and no miscarriage. The second sister

* Blomfield: Brit. Med. Jour., 1901, i., 1143; Arkwright: Edin. Med. Jour., 1902, 12; Duguid: Brit. Med. Jour., 1906, i., 319; Nason: Brit. Med. Jour., 1910, i., 989; Tylecote: Med. Chron., 1914, 58.

also enjoys good health and is married. She has two children —a boy, aged 13 years, who has always been well, and a girl, aged 8 years, who is also well, but was severely jaundiced at birth. The third sister suffers from indifferent health. She is married but has no children. Her condition is ascribed to "chronic constipation, possible appendix trouble, toxæmia." She has had various forms of treatment, including vaccines and thyroid extract.

Mrs. X. herself was born in 1891 and was normal at birth. During early childhood she enjoyed fair health and suffered from scarlet fever, "slight dysentery," and German measles. During later girlhood her health was indifferent, but she was seldom unable to carry out the day's duties. She suffered from mumps, varicella, and "lack of vitality," and received medical treatment and spinal massage for neurasthenia. She was married in 1915 when aged 24¼ years.

Mr. X. is one of a family of six brothers and sisters and is the youngest of the family by seven years. At his birth his father was aged 45 and his mother 41. His father died aged 83 of old age, and his mother, aged 72, of cerebral hæmorrhage. One brother died in infancy, two are well and unmarried, and one is well and married, with three children (girls, all alive and healthy). His sister is strong, married, and has five healthy children, all girls. He was born in 1885, prematurely. He enjoyed a robust, athletic boyhood and manhood, and at his marriage in 1915 was aged 30½ years. He served with the infantry in France from January, 1916, till April, 1919, and suffered slightly from D.A.H., due to gas poisoning and strain. He was passed for insurance as a first-class life in June, 1922.

After marriage Mrs. X. appeared well, had a good appetite, and slept well, but lacked energy and felt cold severely. She was frequently worried and depressed, lacked confidence, and disliked being alone. She suffered from marked constipation, to relieve which constant medicinal treatment was necessary. The constipation steadily increased in severity after the birth of her first child in 1916 and was treated by one of us (W. G. M.) by means of paraffin, phenolphthalein, cascara, and mag. sulph. In April, 1920, she suffered from influenza. She has given birth to four children, and in all four pregnancies has been very free from morning sickness, and has had no albuminuria.

First Child.—Male, born Oct. 1st, 1916. Labour normal, conducted by one of us (W. G. M.) under scopolamine and morphine. The infant was healthy and there was slight jaundice after birth. He is alive and has always been exceptionally strong and healthy.

Second Child.—Female, born Sept. 28th, 1920. The labour was normal under scopolamine and morphine (W. G. M.). Liver large at birth, extending to below the umbilicus. No enlargement of spleen. Jaundice developed very shortly after birth, and increased in severity till fourth week. Baby nursed at breast for four weeks, and thereafter fed with glaxo. The jaundice after this somewhat decreased. The whole time, however, the baby took food very badly; much distension of intestines. Motions small and latterly constipated. Bile present in fæces, and absent in urine. No vomiting or hæmorrhage. Baby very sleepy and dazed, and gradually became more comatose. Died when aged 2 months, and was seen by one of us (A. D. F.) the day prior to death. At this time she was deeply jaundiced and so comatose that she was unable to swallow and was fed by a stomach-tube. She had a peculiar, cretinoid appearance, no hæmorrhages, and such marked abdominal distension that palpation revealed nothing but great intestinal distension—almost certainly of the small intestine. A blood film threw no light upon the case. To clear up the diagnosis of the case a Wassermann test was suggested, but could not be obtained. Intimate family history was, however, known and strongly negatived a specific cause. At this time the possibility of the diagnosis of congenital family jaundice was discussed but discarded, because, although the jaundice had recently improved, the baby's general health had become progressively worse. The improvement in the jaundiced condition was possibly due to weaning. Unfortunately no post-mortem examination could be obtained.

Third Child.—Female, born Feb. 15th, 1922. Labour normal under scopolamine and morphine (W. G. M.). Baby deeply jaundiced; great enlargement of liver and spleen. No hæmorrhages. Baby well nourished. A blood film showed large numbers of basophile cells. She died when 1 day old.

Post-mortem Examination.—This examination was carried out by Dr. L. S. Ashcroft the following day. He reported as follows: "There were no obvious naked-eye lesions present anywhere, except a very enlarged liver and also a large spleen, which otherwise showed no macroscopical lesions. I could not find any congenital abnormalities present in any organ. I took some of the liver, spleen, pancreas, and thymus for section work, and also some of the heart's blood. The heart's blood was negative for a Wassermann reaction, and in none of the sections could I detect any spirochætes, nor was there anything histologically suggesting syphilis. Further there was no suggestion of an inflammatory condition."

Microscopical Examination.—Prof. E. Glynn examined and reported as follows on the section of liver: "Report on one section of liver, stained with hæmatoxylin and eosin and showing a considerable amount of post-mortem change. The appearances are remarkable owing to: (*a*) the presence of only about one-third the normal number of hepatic cells—the survivors are arranged in small isolated masses and slender columns (see Special Plate); (*b*) the presence of large numbers of nucleated cells lying between the surviving hepatic cells. All parts of the lobule are about equally affected by these changes. The epithelial cells are distorted and often very narrow from degeneration or from atrophy —partly pressure atrophy. The cytoplasm of many shows evidence of fat of the 'degenerative infiltration' type, for the vacuoles are very fine, and the nuclei, when present, are central. The erythrocytes in the two hepatic arteries present in the section are perfectly preserved, but those in the hepatic and portal veins have almost completely hæmolysed—evidently from intestinal toxins developing post mortem. The sinusoids show a great increase in the number of nucleated cells, but owing to the difficulty of recognising the endothelial or Kupfer cells which partly line the sinusoids, it is impossible to state what proportion of these nucleated cells are inside or outside the sinusoids. The majority of the nucleated cells are probably lymphoidocytes—i.e., the primitive blood-cell from which myeloblasts, lymphoblasts, and erythroblasts develop. A large number of erythroblasts are certainly present, for many of the cells have a round deep blue staining nucleus to which are attached fragments of homogeneous red cytoplasm. The blood in both the hepatic arteries shows an increase in the number of nucleated cells; many are certainly erythroblasts. The bile-ducts are normal; the bile canaliculi cannot be seen; apparently bile-pigment is absent. There is a slight cellular infiltration of Glisson's capsule, but no fibrosis in them or in other parts of the liver.

"*Comments.*—Formerly most of the nucleated cells in the sinusoids and hepatic artery would probably have been regarded as lymphocytes and the pathological condition classified as fœtal leukæmia (see Reuss, loc. cit., p. 330). It is, however, almost certainly one of 'erythroblastosis.' In other words, the vascular areas, or 'herde,' of blood formation producing erythroblasts, myeloblasts, &c., which are normally present in fœtal life have not only *persisted*—as they usually do till shortly after birth—but have also *enlarged* and become diffused throughout the liver lobule. Erythroblastosis is always associated with enlargement of the spleen and liver, which was observed in this case.

"The histological appearances of this section resemble those seen in the liver of a 37 weeks' old macerated and jaundiced fœtus, described by Dr. N. B. Capon in an interesting paper on 'General Œdema of the Fœtus' (Jour. Obstet. and Gynæcol. Brit. Emp., 1922, vol. xxix., No. 2, Case 8). Here, as in the case under discussion, there was no œdema. In erythroblastosis, as Capon points out, the fœtus responds to an 'impairment of nutrition' by an increase in blood formation. The section described here throws no light on the cause of the impaired nutrition, nor on the cause of the jaundice."

Fourth Child.—In the beginning of October, 1922, Mrs. X. again found herself pregnant. She was in good health, but both she and her husband were much perturbed since a clear diagnosis of grave familial jaundice had been explained to them with a very guarded prognosis as to the probable condition of future children. She at once agreed to submit to detailed examination with a view to treatment during pregnancy. Thorough clinical examination by one of us (W. G. M.) showed her to be in sound health, active, and energetic, but to suffer still from marked constipation. Dr. Ashcroft, on Oct. 13th, examined the blood Wassermann reaction, which he found completely negative. He also examined a catheter specimen of urine. This showed, in the centrifuged deposit, "a few bladder cells, no renal cells, no renal casts; no red blood cells; no pus cells. Culturally: *Staphylococcus albus* only (most probably saprophytic or possible contamination)." Dr. R. Coope's report (Oct. 16th, 1922) was as follows:—

"Blood: Coagulation-time normal; fragility of red blood corpuscles normal; Van den Bergh's test for bilirubin completely negative. By Folin and Wu's method—sugar (three hours after a mixed meal), 105 mg. per 100 c.cm.; non-protein nitrogen (on simple mixed diet), 26 mg. per 100 c.cm. Red blood corpuscles, 4,300,000; white blood corpuscles 6800 (polymorphs 70 per cent., large lymphocytes 8 per cent., small lymphocytes 21 per cent., eosinophiles 1 per cent.); hæmoglobin 79 per cent.

"Stools: Nothing abnormal found (either in stools of a milk régime or those of a controlled test diet).

"Urine: Sugar, blood, bile pigments and bile salts, and acetone bodies absent. Urobilin, no excess. Albumin, slight

amount. Indoxyl, markedly excessive. Titratable acid, 18 c.cm. decinormal soda. Total nitrogen, 0·66 g. per cent. Ammonia, 27·2 mg. per cent. Urea, 1·41 g. per cent. Ammonia ratio 4·1 per cent. Diastase, 6 units. Deposit: The catheter specimen showed no pus cells or bacilli but a few hyaline and hyalo-granular casts. The first (24-hourly) specimen which I examined showed quite a fair number of casts—hyaline, hyalo-granular, and definitely granular casts. A third specimen (morning specimen) also showed casts, though not quite so numerous as in the 24-hourly specimen. Urea-concentration test (hypobromite method): First hour after 15 gm. urea ingested, 4·5 per cent.; second hour, 5·0 per cent.; third hour, 5·2 per cent.

"The positive findings are these: slight but appreciable albuminuria, granular casts. The blood non-protein nitrogen is not higher than normal, even for pregnancy (Folin and Wu's whole-blood method used). Urea concentration is very good. It looks, therefore, as though there has been, or is, a small renal lesion, but no obvious impairment of renal function, even when the strain of 15 g. of urea is imposed upon the kidney."

She was also examined by a gynæcologist (Dr. Leith Murray), who reported on Oct. 10th: "I find her both by history and by examination 12 weeks pregnant. Bi-manual examination discloses no abnormal feature."

With such data to hand she consulted Dr. Robert Hutchison as to her régime during pregnancy. With a view to preventing intestinal toxæmia he recommended a lacto-vegetarian diet, advised the use of senna pods as a laxative, and also calomel, gr. 1/20, twice or three times daily. Acting on this advice, she passed through an uneventful pregnancy and on April 20th, 1923, a baby boy was born at full term. Scopolamine and morphine were used during labour and the baby weighed 8 lb. at birth and appeared perfectly healthy. He has shown no sign of jaundice, was reared on the bottle (cow's milk mixture), throve extremely well, and is now aged 6 months, weighs 14 lb. 11 oz., and is 26 in. in length.

We are greatly indebted to Drs. Ashcroft and Coope, Prof. Glynn, and Drs. Hutchison and Murray for permission to publish their reports.

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SURGICAL TUBERCULOSIS IN EGYPT.

AN ANALYSIS OF 2500 CASES.

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THE incidence of bone and joint and gland tuberculosis in Egypt differs essentially from that in England to-day. Among the fellaheen or country people, and also among the urban population of Egypt, the flat bones, the bones of the skull and face, the sternum, scapulæ and ribs, the spine and ilium, and the small bones of the hands and feet are chiefly affected. The long bones and the big joints are not so commonly involved.

We have concluded an analysis of 2500 cases of surgical tuberculosis that have attended the out-patient department or been admitted to the surgical wards of Kasr-el-Ainy Hospital within the last three years. Of these, 1197 have been cases of tuberculous glands, 804 cases of tuberculosis of the flat bones, 159 cases of tuberculous peritonitis, and only 340 of the long bones and the big joints.

Source of Tuberculosis in Egypt.

It is not easy to find the source of tuberculosis in Egypt. The experience of the Government abattoirs, where a rigorous inspection of animals and meat is held, shows that cows and bulls are becoming more commonly affected. The published statistics of the Cairo abattoir have increased from 625 cases of tuberculosis in 1914 to 1807 in 1917. The best grades of beef are far too expensive for the poor of Cairo. The cows of the country are very susceptible to tuberculosis. No less than 43 per cent. of the Domain cattle, the best and best cared for cattle in Egypt, responded to the tuberculin test. The slaughter-houses of Cairo and Alexandria find that 5·2 per cent. of all animals are infected. Swine flesh, in a Moslem country, can, of course, be disregarded as a source of infection. The gamoose or buffalo, the poor man's cow in Egypt, is relatively immune to tubercle, as it is to cattle plague. Cow's milk is more expensive than buffalo's milk, and is almost entirely kept for European consumption; this, in spite of the fact that buffalo's milk is richer in fats and in casein. The milk of the poor is practically free from disease, as is his meat. The expensive bull or cow-beef is also kept for European consumption. The sheep and goat that are the common sources of the poor man's meat-supply—though the fellaheen eat meat once only in the week as a rule—are not susceptible to, or indeed infected by, tubercle in Egypt. It is in all probability the bad quality and health of the animal that is eaten rather than the susceptibility of that animal to tubercle that are the important factors. The buffalo, cow, and camel are practically never eaten by the poor unless they are sick and obviously unlikely to recover their usefulness for purposes of work or profit, and the camel is now very susceptible to tuberculosis.

There is, however, a source of surgical tuberculosis that has not yet been sufficiently explored in Egypt. Avian tuberculosis affects both pigeons and chickens. In fact, fowls are particularly prone to disease of all kinds in Egypt, to fowl plague and fowl cholera, though the incidence of actual fowl tuberculosis has not yet been fully worked out. The fellaheen, eating as they do from the mud floors of their huts, are most likely to contaminate their food with droppings of fowls which inhabit the same huts. It is the urban populations in Egypt rather than the fellaheen among whom surgical tuberculosis is the greater scourge. In this respect the incidence of disease is similar to that of Europe. It is probably to the poor quality and possibly infected nature of the meat-supply, and the great inrush of non-immune fellaheen from the villages into the now rapidly swollen towns, that we can attribute the great and rapid increase in the incidence of tuberculosis of bones and joints and glands in Egypt.

Incidence of the Disease.

Tuberculosis in general, and surgical tuberculosis in particular, is the greatest scourge in the whole country. It is the great killing disease where bilharziasis and ankylostomiasis are the great disabling diseases in Egypt. The Soudanese, with woolly hair and coal-black skins, are particularly predisposed to this disease in comparison with the Egyptian, who is a brown man with flat black hair.[1] Thirty years ago, before the improved means of sea communication brought the invalids of the world to Egypt, tuberculosis, both pulmonary and surgical, was a comparatively rare disease in Egypt. This is the experience of all the old practitioners of that time.

Immunity to Tuberculosis, Past and Present.

Tuberculosis appears to have the characters of a new disease in modern Egypt, and the population seems to have little acquired immunity to the disease. And yet if it is new to-day it was not always new. The bones of Predynastic, Dynastic, and Ptolemaic Egypt present the most marked evidences of this disease, as indeed they do of rickets, achondroplasia, and osteomyelitis. But of syphilitic diseases of bone there is not one authentic specimen. The history of Egypt presents an alternating series of great civilisations and greater catastrophes. There are the enormous urban populations like those of Memphis

[1] Madden: The Surgery of Egypt.

and of Thebes, and the periods when these civilisations were destroyed and dispersed by the invading armies that have swept Egypt from time to time in her past history. Then the population, perforce, turned to agriculture. In these alternating periods of agricultural and crowded urban populations the incidence of tuberculous disease in the bones exhumed from the graves of the various Dynastics seems to vary.[1] During the agricultural eras we find evidences of disease of the long bones and big joints such as the knee or hip; in the eras of industrial activity and the crowded life of the enormous cities of ancient Egypt we find tuberculous caries of the flat bones, the spine, the ribs, and the ilium. So marked a scourge was surgical tuberculosis in ancient Egypt that the crowded life of cities, in the rabbit warrens of mud houses as we know them to have been in those days, could hardly have been possible unless an acquired immunity to the disease had been developed. In the agricultural eras this immunity broke down. This evidence from the past, and the incidence of surgical tuberculosis to-day when the population is increasing and large industrial populations are developing, suggests that tuberculosis of the long bones and the big joints is the result of infection by a strain of tubercle bacilli of attenuated virulence in a race that has gained its immunity; whereas the type of disease attacking the flat bones is of a new and exalted virulence in subjects with no acquired immunity.

The *mortality* of this disease in Cairo and all the cities of Egypt to-day is very great. Among the poor urban population the death-rate is 80 per cent. in the case of gross tuberculous disease of bone with abscess and mixed infection. Even in hospital, where good food and fresh air and adequate surgical treatment are available, our experience is little different.

The *course* of the disease is very rapid; quick abscess formation and marked deformity are the rule. Mixed infection inevitably takes place, owing to the common practice of incision and drainage of the abscess instead of aspiration. As a rule the disease takes about 18 months to kill, and the end is usually from a green infective diarrhœa. Meningitis is comparatively rare as a terminal manifestation of the disease.

There are no complete official *statistics* of the disease. Hospital admissions show a greater preponderance of tuberculous disease of hip or knee or spine than in out-patients; but this is because they are of necessity bedridden cases. But if one compares the numbers of new cases of Pott's disease of the spine alone that come to out-patients every afternoon with the number of adult hunchbacks to be seen in the streets it is sufficient to carry conviction. An adult with Pott's deformity is rare in Cairo; but new cases of children with recent disease of the spine attend every afternoon.

In regard to the sharp line that can be drawn elsewhere between pulmonary and surgical tuberculosis, we have the same experience in Egypt of gross disease of the spine with unaffected lungs, and advanced pulmonary tuberculosis of the apices of the lung without involvement of the lymphatic glands of the neck.

Treatment.

The treatment of surgical tuberculosis in Egypt is very unsatisfactory. There are two surgeries in Egypt, the surgery of the poor and the surgery of the rich. For the latter there are institutional treatment, hygienic and dietetic aids, and the same conservative operations and orthopædic apparatus, designed from the point of view of restoration of function, as in Europe. But for the poor there are in general no sanatoria, no orthopædic apparatus, and only a few possible conservative operations upon joints. Spinal caries and big-joint affections with abscess formation, in which plaster and repeated aspiration fail and, especially, in which mixed infections subsequently develop, are usually hopeless. The best that we can hope for in a tuberculous knee or hip is a fixed joint. Amputation is far the safest and best functional operation in mixed infections in the limbs. Any temporising operation, such as the scraping of sinuses in tuberculous dactylitis, for instance, is commonly followed by recrudescence of the disease in other joints and other epiphyses. As a rule, plaster with a view to fixation in useful functional position in cases of pure disease of joints, or amputation in cases of mixed infection, is far the best. In the numerous class of cases where flexion-deformity exists, with active disease, treatment in plaster until ankylosis is firmly established and disease quiescent, is the only safe treatment to adopt. The deformity can subsequently be corrected by such straightening operations as subtrochanteric osteotomy.

For tuberculous caries of the spine in Egypt Albee's operation of bone grafting is an excellent procedure. From the point of view of function and stability nothing gives us so strong and rigid a spine as a bone graft. Our only alternatives are plaster jackets, which are seldom effective, and always intolerable, owing to the incredible number of vermin that collect beneath them, or orthopædic apparatus, for which there are no funds or Samaritan societies, and which have a definite market value to poor, and perhaps unscrupulous, parents. In this connexion, however, it is necessary to add that there are no more devoted parents in the world than in Egypt and in all Moslem countries, though their ignorance is often pitiable. In Albee's operation, however, the shock of the whole operation at one sitting is great, and our children are often so wasted by want of good food and by parasitic disease that we have adopted a method of performing this operation in two stages. The first consists of removal of the tibial graft and implantation in the cellular tissue of the abdominal wall; the second, after an interval of a week or ten days, of the implantation of the graft along the spinous processes.

Tuberculous glands of neck often show very promising results after treatment by X rays. Such is the common and extensive involvement of the glands in both triangles of the neck that operations, to be complete, are so mutilating and so frequently followed by recurrence as to prompt surgeons to abandon operation altogether.

Conclusions.

The conclusions at which we have arrived after the study of hospital cases, veterinary and abattoir statistics, are:—

(1) Tuberculosis, both surgical and pulmonary, is very greatly on the increase in Egypt.

(2) The type and incidence of surgical tuberculosis in the flat bones rather than in the classical long bones and joints suggest that we have here a recrudescence of the disease in a community that has lost its acquired immunity.

(3) The study of Predynastic, Dynastic, and Ptolemaic bones, extending to a period as far back as 3000 years B.C., proves that surgical tuberculosis was a disease of frequent incidence in those times. It also suggests that the type of disease affecting the flat bones developed when periods of urban civilisations succeeded periods of almost purely agricultural life in Egypt. Maceration and softening of mummified tissues, which have been successful in demonstrating certain infective organisms in Predynastic bodies, have not yet enabled us to demonstrate the tubercle bacillus. Work on this subject is still proceeding.

(4) The meat- and milk-supply of the poor in Egypt is obtained almost entirely from non-tuberculous sources such as the buffalo and goat, which are relatively immune to tubercle.

(5) Avian tuberculosis is probably a contributing cause of the incidence and development of this disease among the poor in Egypt.

(6) The development of the two-stage method of performing Albee's operation of bone grafting of the spine allows this procedure to be adopted even in young children.

[1] Ruffer: The Palæo-pathology of Egypt.

THE VACCINE TREATMENT OF OZÆNA.

BY KOZO SAKAGAMI, M.D.,
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IN 1908 Perez discovered the coccobacillus of ozæna, and in his report considered it to be the pathogenic bacterium of that disease. In the same year Skillen and Holmes also discovered a similar bacillus, and prepared from it a polyvalent vaccine which they tried clinically. In 1913 Hofer and Kofler prepared a new vaccine from the Perez bacilli, and tried it on many ozæna patients; their results were reported to the German Society for Laryngeal Diseases. As stated recently, on the strength of my studies extending over several years, I became convinced that the causative agent of ozæna is the coccobacillus of Perez and Hofer, and that therefore a vaccine treatment by this bacterium is the most reasonable of all the ozæna treatments. Through the kind assistance of several specialists I have been enabled to employ the vaccine treatment in more than 70 instances since 1919. Unfortunately some of the patients failed to continue the injections for the requisite period, in other cases the records are incomplete, so that only 30 cases remain. Even so, the following report may be of interest, as it gives some idea of the treatment.

Preparation of Coccobacillus Vaccine and its Application.

Patients clinically diagnosed as sufferers from ozæna were examined bacteriologically, and a so-called autogenous vaccine was separately prepared for each patient, these vaccines being mono- or poly-valent according to the case, monovalent for simple, polyvalent for multiple infections.

The number of bacteria present in the vaccine is ascertained by counting, and sterilisation effected by heating after Wright's method. The number of bacteria contained in 1·0 c.cm. of vaccine is also ascertained.

In my first preparation I used a comparatively small number of bacteria; in subsequent experiments, however, I found that a larger dosage is well borne by the patients and is more effective. Accordingly the number of bacteria contained in the vaccine has been greatly increased.

Number in millions of bacteria.

	In first preparations.	In recent preparations.
Coccobacilli	100	500
Grøm-positive B... ..	100	400
Staphylococci	500	1000
Friedlaender's B... ..	100	500
M. catarrhalis	50	200

Dosage.—Of my recent preparations (with the increased number of bacteria) I have fixed the dosage for the first injection at 0·1 to 0·2 c.cm., containing: coccobacilli, 50 to 100 millions; Gram-positive B., 40 to 80 millions; staphylococci, 100 to 200 millions; Friedlaender's B., 50 to 100 millions; *M. catarrhalis*, 20 to 40 millions. The maximum dose is 1·0 c.cm., containing: coccobacilli, 500 millions; Gram-positive B., 400 millions; staphylococci, 1000 millions; Friedlaender's B., 500 millions; *M. catarrhalis*, 200 millions.

After the first injection the dose is to be increased by 0·1 to 0·3 c.cm. up to the maximum dose, which may be maintained, or the doses may be gradually decreased again to 0·6 to 0·8 c.cm., and then maintained at this latter figure.

As to the *place of injection*, the subcutaneous tissue of the outer part of the upper arm is preferable.

Reaction.—When the doses are gradually increased, as indicated above, there is almost no reaction, and even if the injected part should become red or swollen, this will subside soon.

The *interval between injections* should be three to four days during the period for small injections (up to 0·5 c.cm.), and five to seven days for 0·6 c.cm. or above.

Autogenous Vaccines Prepared.

The total number amounts to more than 75, but here I enumerate only those used in the cases considered in this report.

TABLE I.

Current number.	Species of vaccine.	Number of preparations.
1	{Coccobacilli / Gram-positive B.} Mixed.	13
2	Coccobacillus vaccine.	6
3	{Coccobacilli / Staphylococci} Mixed.	4
4	{Gram-positive B. / Staphylococci} Mixed.	3
5	{Coccobacilli / Gram-positive B. / Staphylococci} Mixed.	1
6	{Gram-positive B. / *M. catarrhalis* / Staphylococci} Mixed.	1
7	{Gram-positive B. / Friedlaender's B.} Mixed.	1
8	Gram-positive B.	1
	Total	30

Clinical Trial of Coccobacillus Vaccine.

As already stated, out of the total number of ozæna patients treated with the vaccine, there are only 30 whose records are complete. It would be of little interest to go into the details of each case, so I tabulate them briefly (Table II.). When going through the table it will be seen that among the 30 patients treated there were six who presented the ozæna symptoms, but whose autogenous vaccine contained no coccobacilli; these six cases should, of course, not be taken into account when determining the value of coccobacillus vaccine. Then there are 24 cases left which received either pure or combined coccobacillus vaccine—viz., 5 cases slightly improved (21 per cent.), 11 cases fairly improved (46 per cent.), 6 cases thoroughly recovered (25 per cent.), and 2 cases with no improvement (8 per cent.). The longer the injections are continued the better are the prospects of recovery.

Condition of Blood Corpuscles of Ozæna Patients and Immunised Rabbits.

I have always endeavoured to determine the changes, if any, in the condition of the blood corpuscles of the ozæna patient after he has undergone a prolonged course of treatment with coccobacillus vaccine, as compared with the state before treatment, because in this way certain facts might be secured for judging the effects of the treatment, or some otherwise helpful ideas might suggest themselves. I have also compared the condition of the red blood corpuscles of the rabbit immunised against the coccobacillus with that of the rabbit immunised against Gram-positive bacilli, and these two again with that of the normal rabbit. The result is summarised as follows:—

(1) The number of both the red and the white blood corpuscles of the ozæna patients is remarkably low, and though both show some increase in number after the injections, the difference is only slight. Also the relative percentage of the various kinds of white corpuscles remained the same, while the hæmoglobin generally decreased.

(2) In the rabbit immunised against the coccobacillus, and in the rabbit immunised against both the Gram-positive and Friedlaender's bacilli, there appeared an equal decrease in the number of both red and white corpuscles, but no change in the specific percentage of the white corpuscles, while the quantity of hæmoglobin decreased a little.

From the above we may deduce that, if the number of blood corpuscles of an ozæna patient has not increased after the injections, the number of injections has been insufficient; and when we see that in the case of rabbits highly immunised, and, as proved by animal tests, effectively immunised, there remains still a more or less considerable decrease in both elements, especially in the white corpuscles, we may infer that infection of man with Perez's bacillus is the cause of the decrease of the blood corpuscles.

TABLE II.

Number.	Patients.	Sex.	Age.	Time of inj.	Period in months.	Species of vaccine.	Symptoms before injection.			Symptoms after injection.		
							(i)	(ii)	(iii)	(i)	(ii)	(iii)
1	S.M.	M	17	9	2·5	B.G + S.C	†††	†††	†††	††	††	††
2	U.M.	M	18	11	3	C.C S.C	†††	†††	†††	†	†	†
3	N.M.	M	19	16	4	C.C S.C	†††	†††	†††	†	†	†
4	F.W.	F	24	20	5	C.C	†††	†††	†††	0	0	0
5	O.U.	M	19	8	2	B.G + S.C	†††	†††	†††	††	††	††
6	Y.Y.	F	33	17	4	B.G + C.C	†††	†††	†††	0	0	0
7	K.I.	M	27	5	1·5	B.G + S.C	†††	†††	†††	††	††	††
8	W.M.	M	20	10	3	C.C	†††	†††	†††	††	††	†
9	M.W.	F	38	7	2	B.G + C.C	†††	†††	†††	††	††	†
10	H.M.	M	19	9	2·5	B.G + C.C	†††	†††	†††	†	†	†
11	U.T.	M	16	17	4·5	B.G + C.C	†††	†††	†††	0	0	0
12	F.M.	M	16	14	3·5	B.G + C.C	†††	†††	†††	0	0	0
13	Y.T.	F	16	2	½	B.G + C.C	†††	†††	†††	†††	†††	†††
14	N.L.	M	22	10	2·5	B.G + C.C	†††	†††	†††	†	††	†
15	K.D.	M	28	10	2·5	C.C	†††	†††	†††	0	0	0
16	W.K.	M	25	10	2·5	B.G + C.C	†††	†††	†††	0	0	0
17	K.N.	M	20	2	½	B.G + C.C	†††	†††	†††	†††	†††	†††
18	M.S.	M	18	11	3	C.C S.C	†††	†††	†††	††	†	0
19	F.S.	F	29	11	2	B.G + C.C	†††	†††	†††	†	†	0
20	S.I.	F	16	9	2	B.G + C.C S.C	†††	††	†	††	††	†
21	W.B.	M	17	14	3	B.G + F.D	†††	†††	†††	††	†	††
22	H.I.	F	20	12	3	C.C S.C	†††	†††	0	†††	††	0
23	U.Z.	F	27	19	2	C.C	†††	†††	†††	††	†	†
24	T.D.	F	27	9	2	C.C	†††	†††	†††	††	††	††
25	T.H.	M	38	8	2	C.C	†††	†††	†††	††	††	††
26	I.Y.	F	31	9	2	B.G + C.C	†††	†††	†††	††	††	††
27	K.Y.	M	24	11	2·5	B.G + C.C	†††	†††	†††	††	††	†
28	A.K.	M	14	4	1·5	B.G + C.C	†††	†††	†††	†††	††	††
29	S.Z.	M	57	7	1·5	B.G + M.C. S.C	†††	†††	†††	†	††	†
30	M.N.	F	69	6	1·5	B.G +	†††	†††	†††	†††	††	†

N.B.—(1) In the column for "Species of vaccine," B.G + signifies the Gram-positive bacilli, S.C the staphylococci, F.D the Friedlaender bacilli, M.C the *M. catarrhalis*, and C.C the coccobacilli.

(2) In the column for "Symptoms before (after) injection," (i) signifies the stinking secretion, (ii) the crusts, (iii) the naso-pharyngeal exsiccation, ††† the highest degree, †† the medium degree, † the lowest degree, and 0 the absence resp. disappearance of the symptom.

Conclusion.

If we place together the experimental results obtained so far, we arrive at the following conclusions:—

1. As various diseases of the nasal passage present a close resemblance to ozæna, the effectiveness of the vaccine treatment of ozæna patients can only be determined by applying the autogenous vaccine produced from the bacteria carried by the patient himself, and after the species of such bacteria has been ascertained.

2. My bacteriological observations show that most ozæna patients suffer from a mixed infection by the coccobacillus and Gram-positive mucus-producing bacilli; therefore the application of mixed vaccine derived from these two kinds of bacteria appears reasonable.

3. Injections of coccobacillus vaccine and mixed vaccines are the most reasonable treatment of ozæna cases.

4. Ozæna patients generally show a decreased number of red and white corpuscles, and this condition does not change after vaccine treatment. In animal experiments likewise the red and white corpuscles of the rabbit immunised against coccobacillus show a considerable decrease.

In closing this report, I express my thanks to Dr. Minokichi Kurosu for his coöperation during my clinical trials, and to Dr. Kazuyoshi Asaba and Dr. Sadayemon Sasaki for the great help given in the experiments.

NOTE ON THE TREATMENT OF EPIDEMIC ENCEPHALITIS.

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DURING the present spring and in that of 1923 I have had the opportunity of seeing and treating in private and in the wards of the Edinburgh Royal Infirmary under my charge over 20 cases of epidemic encephalitis. In many the usual features were present—cranial nerve palsies, nocturnal insomnia, and drowsiness during the day. Some, in addition, had the painful myoclonic contractions, and two marked choreo-athetotic movements. The treatment of the condition is admittedly unsatisfactory. Urotropin in large doses, Pregl's iodine solution, sod. cacodylate injections, with hyoscine hydrobromide as a palliative, have all been tried, sometimes with partial success.

For many years now I have employed intramuscular injections of magnesium sulphate in chorea with considerable success, and during the past two winters I have been observing its effects in epidemic encephalitis, and I think with better results than other suggested remedies. This is particularly so in the myoclonic and choreo-athetotic types. The myoclonic and choreo-athetotic types are often very severe, are very trying to the patient, and the muscular contractions are very painful, but with magnesium sulphate injections I have never failed to stop the contractions after a few doses. The last two cases admitted to my wards were typical.

One had myoclonic contractions, very severe over the whole abdominal wall, and less so in the lower limbs. After three injections the contractions entirely ceased and did not recur. The second case had severe choreo-athetotic movements affecting the whole body, which had been present for three days before admission. During the following three days the movements became, if possible, more trying. Magnesium sulphate was then given. A difference was observed after the first injection, and after three injections the movements had almost entirely ceased. In the ordinary cases with the cranial palsies, drowsiness, &c., benefit can also be observed. After four or five injections the temperature falls to normal and the patient is less drowsy, though the ocular palsies still remain.

This treatment with magnesium sulphate is, I think, worth a further trial. A 25 per cent. solution of magnesium sulphate is used and 4 c.cm. given at each injection. The second dose is given 12 hours after the first, and the third and subsequent doses, if required, at 24 hours' interval.

Medical Societies.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

A MEETING of this Society was held at the rooms of the Medical Society of London on May 30th, Colonel L. W. HARRISON, the President, being in the chair.

A discussion took place on the subject of

Epididymitis.

Mr. KENNETH WALKER said that though the gonococcal was the form of epididymitis chiefly concerned, it would be necessary for him to refer to such other forms as those due to the tubercle bacillus, *B. coli*, and other pyogenic organisms. It was the general belief that infection of the epididymis from the urethra was effected through the lumen of the vas, the exciting cause being a wave of reversed peristalsis which drove infective material downwards towards the epididymis. He did not deny this, but was convinced that another route was open to the infecting organisms. In some experiments he made 14 years ago with *B. prodigiosus* he was able to prove that organisms could reach the epididymis from the urethra even after the vas had been tied and divided. The epididymis was infected 10 to 24 hours after inoculating the urethra, and the infection was not blood-borne, as blood cultures were always negative. Later work suggested that the organisms travelled along the lymphatics in the sheath of the vas. It was known that infection descended the cord, and that the chief producer of epididymitis was irritation of the posterior urethra, trauma of the latter, in his view, opening up the lymphatics to infection. A factor of equal importance in the production of epididymitis was direct trauma of the testis; there was often a history of the latter in the cases. He was sure that gonococci were often present in tissues without producing symptoms; and if they were in the epididymis even the trauma associated with exercise would suffice to precipitate epididymitis. During the war, epididymitis was most frequent where irrigation was carried out at too great a pressure and where it was the habit to place subjects of posterior urethritis on to fatigue duty.

Preventive treatment was very important, and all irritation of the posterior urethra must be avoided during the acute stages of the disease. The tendency of the present day was towards over-treatment and over-instrumentation. Rest was very important; the cases would be halved if all acute gonorrhœa cases were kept in bed. Failing this, patients should wear suspensory bandages and take a minimal amount of exercise. He had not found atropine or belladonna definitely helpful, though they should reduce peristalsis in the vas. To prevent epididymitis occurring after prostatectomy, many surgeons ligatured the vas at the neck of the scrotum. Some French urologists had advocated that for many years, and Mr. Clifford Morson in this country favoured the practice.

Diagnosis.—With regard to diagnosis, he said the common conditions from which a gonococcal epididymitis had to be distinguished were attacks which occurred secondary to urinary infections by other organisms, such as *B. coli*, acute attacks of epididymo-orchitis associated with blood infections, such as mumps and typhoid, and from tuberculous epididymitis. Epididymitis could complicate a staphylococcal prostatitis as easily as it could a gonococcal one. The differentiation of the gonococcal from the tuberculous condition was not always easy, especially as the method of spread was the same in both. In the majority of both tuberculous and gonococcal cases, a lesion of the prostate or vesicles could be detected by rectal examination. In 22 out of 24 cases of genital tuberculosis sent to him for examination he found signs of prostatitis or vesiculitis. In early days it might be necessary to wait for a certain diagnosis.

Treatment.—When the condition had developed, two objects were aimed at in treatment: (1) the relief of pain, (2) the hastening of resolution. A third, and important, one he regarded as the prevention of subsequent sterility. All inter-urethral treatment should cease and the patient be kept in bed, which he was usually glad of, owing to the acuteness of the pain. In some, the pain was felt along the cord rather than in the testicle itself, sometimes leading to the diagnosis of acute appendix, especially if vomiting also occurred. Hot fomentations, supported by hot baths and rubefacients might give sufficient relief, especially if backed up by morphia suppositories. The form of heat application he favoured was that by diathermy, the whole testicle enwrapped in a zinc sheet which had been well padded with lint soaked in saline. This treatment was applied daily. The pressure pain could be much reduced by puncturing the swollen epididymis with a hypodermic needle, drawing off a little blood-stained serum. Americans favoured doing more: opening the tunica vaginalis and incising the swollen epididymis. Owing to the danger of dividing the epididymal canal, resulting in stricture and sterility, he did not approve of this more heroic measure.

Epididymitis and Sterility.—Mr. Walker said it was probable that gonorrhœa was responsible for at least 40 per cent. of all barren marriages, and if sterility in the male alone were taken, the figure would be even higher. Of 30 husbands sent to him by gynæcologists, he found seven cases of azoöspermia, three of which were the result of previous gonococcal epididymitis, two of mumps. When epididymitis was bilateral, the chances of sterility were very great. Cunningham and Cook (in America) found that out of 22 patients upon whom they had performed double epididymectomy, 12 subsequently showed spermatozoa in their semen; in five they were absent. No examination of the semen was made in the case of the remaining five. Finger, following the expectant treatment, found that 207 out of 242 cases of gonococcal epididymitis suffered subsequently from azoöspermia. Thus incision of the inflamed epididymis seemed to lessen the risk of sterility.

Discussion.

Major A. T. FROST confirmed what Mr. Kenneth Walker said as to the method of direct infection. He had been looking into the records of over 300 cases and had been struck by the fact that the urethra never showed a posterior infection. In the army a crop of epididymitis cases in the winter usually meant that there was a football team, and strenuous games were played. The sudden exertion caused either injury or a reflex disturbance which spread the disease up the vas. In the army it was rare for a case of epididymis to last beyond ten days, though slight enlargement of the organ might be left longer. Little was done for it except resting the patient in bed and injecting sulpharsenol, though he did not regard the latter as a specific. It had no effect when the patient was at his worst, but was useful on the upward rise and when the infection was clearing up. It was an excellent analgesic. Secondary infection, mostly streptococcic, probably found its way in by irrigation. He relied on vaccine-therapy as much as ever, and a combination of this with sulpharsenol he regarded as the best non-drastic method of attacking the disease.

Mr. CLAUDE MILLS said cases did best which were put on to vaccines as a routine measure. Patients should wear a suspensory bandage from the date the gonorrhœa started; it lessened the risk of subsequent epididymitis. Often the fluid in the tunica vaginalis contained gonococci, though the patient might have no symptoms of epididymitis, showing, he thought, that the gonococci probably got through the lymphatics.

Captain CARMINOW DOBLE said he had found atropine very helpful in epididymitis, and the same was true in his experience of sulpharsenol.

Major DAWSON was able amply to confirm the statement as to the harmful effects of football in these cases of gonorrhœa in producing epididymitis, for in certain hospitals in France during the war there was a high epididymitis rate, but it came down at once when football was stopped.

Mr. H. M. HANSCHELL spoke of the good effect of simple rest in bed and the keeping up of gentle warmth, such as by the application of thermogene wool. The two-glass urine test he did not regard as of real value as showing posterior urethritis, unless it was so severe that there was a coincident cystitis.

Dr. B. B. SHARP referred to a case of what appeared to be anterior urethritis, which, after washing out until the fluid became clear, and the prostate and vesicles seemed normal, was regarded as cured. Three days later the patient slipped in his bath and injured his testicles, and when next seen by the speaker, after having rested in bed, the man had posterior urethritis. Possibly the infection had spread via the lymphatics from the anterior urethra to the epididymis, and the posterior urethra had been infected from the epididymis and perhaps by lymphatics.

Mr. E. R. T. CLARKSON said that although this was not an ethical society, there was one feature of the discussion which he would like to ventilate. It was as to whether, when consulting his medical adviser and found by him to have dual epididymitis, such a patient should, without putting the question, be informed that there was a danger that he might be sterile in marriage, and that a prospective wife should therefore be advised as to that possibility. Did the meeting agree with him that the subject was sufficiently important, as regards both parties, for that course to be justified? To allow the prospective wife to enter into a union with such a man in ignorance seemed scarcely to be "playing the game." If such a man did marry, without himself knowing he was liable to be sterile, he could, it seemed, justly feel he had a moral claim against his medical adviser for not having done his duty in this respect. If the patient asked his doctor the direct question, the course was clear and the matter much simplified.

Mr. C. MILLS said it was his view that the medical man should in every such case point out the danger of sterility, whether directly asked by the patient or not. It would not be fair to allow such a man to enter into marriage blind as to the likely consequences.

Dr. J. DONALD spoke of the kind of cases in which the infection seemed to have been via the lymphatics, not from the posterior urethra.

Dr. M. KORN referred to a series of cases which were treated at London Hospital, under Mr. H. Lett, by the injection of contramine for epididymo-orchitis. There was definite benefit from this method, for they recovered in about a fortnight, or in half the time compared with the cases in which it was not used. He had found that a prolific cause of epididymitis was the use by the patient of strong solutions of such fluids as permanganate.

The PRESIDENT was particularly interested in the question of trauma of the urethra and of the testicle in the matter of the prevention of epididymitis. During the war he had a unique opportunity of definitely associating a high onset of the condition with the playing of football, or the use of ungentle methods of treatment, such as having a strong head of fluid from placing the irrigation apparatus at too great a height; also vigorous or too early massage of the prostate. He fully supported what Mr. Kenneth Walker said in regard to the usefulness of diathermy in the disease. He did not think one could be sure there was no pus in the posterior urethra, even after getting clear urine from the washing out, unless centrifugalising was carried out. With regard to the use of atropine, he related a case with very severe relapsing urethritis, with hard prostate and vesicles, which had immediate testicular swelling when manipulation was attempted, but the use of atropine the night before intended treatment enabled manipulation to be carried out without enlargement of the testicles.—Mr. KENNETH WALKER briefly replied.

The Question of Neuro-Recurrence after Arsenobenzol Treatment.

The PRESIDENT gave a statement on the male cases of syphilis at the St. Thomas's Hospital V.D. centre, numbering 2638. In this number the cases with clinical symptoms of syphilis of the central nervous system were 168 (including 123 of tabes, 12 of general paresis, 6 of tabo-paresis). Of the 168, five had previously had arsenobenzol treatment, prior to the onset of the nerve symptoms, and he gave the details of these, which showed that only one patient had received the intensive course which was employed at the military hospitals during the war.

Gonococcal Infection from Sebaceous Follicle to Prepuce.

Mr. C. MILLS showed a young man who, a week after exposure to infection, had a small "blind pimple" on the skin of his prepuce, and three days later had a second of these lesions, the skin being intact over both. There was no urethral discharge. The follicles were opened, and, as a routine, slides were made of the pus, which yielded pure gonococci. The urethra remained sterile.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

A MEETING of the Surgical Section was held on May 23rd, Mr. R. A. STONEY being in the chair.

Mr. W. PEARSON showed a case of

Atrophic Dermatitis Following "Trench Feet"

treated by periarterial sympathectomy. He said that this condition was a rare sequel to trench feet; this was the second case he had seen. The trouble had started in 1915 with swelling and pain in the feet, since then there had been recurring attacks of vesication of the dorsum of the feet associated with coldness and tingling. He had performed periarterial sympathectomy over three weeks ago, and so far the patient had greatly improved, but it was too early yet to know whether a cure had been effected. The patient said his feet had been quite warm since the operation, and he had not any vesication. It was a very simple operation to do. In the other case which Mr. Pearson had seen the patient had had a great deal of local treatment without benefit, and so he came to the conclusion that surgery was the only possible chance. A dermatologist who was consulted called the condition atrophic dermatitis, and said it was a condition resembling X ray burns, being very unresponsive to treatment. Mr. Pearson had operated and the patient was completely cured.

The PRESIDENT thought that Leriche's operation would be of great help in many cases, as it was apparently a possible cure for such conditions.—Mr. H. STOKES suggested the applicability of this operation to chronic ulcers.—Mr. PEARSON, in replying, said that Leriche's operation was at first advocated not for vascular conditions, but for reflex contractions and paralysis, in which the wounds occurred in the neighbourhood of large blood-vessels and nerves. He personally did not think that the operation would cure such cases. It had been used with benefit in the treatment of callous ulcers.

Mr. A. K. HENRY read a note on an investigation of a

Mechanism of Sudden Death in Cerebral Tumours,

illustrated with lantern slides. He dealt in particular with tumours of the posterior fossa, giving rise to increased intracranial pressure. It had been known for nearly a century that when intracranial pressure was increased the brain tended to herniate through all possible openings. Notable among these was the foramen magnum, and the hernia here consisted of the part of the cerebellum known as the tonsils and portions of the biventral lobes. In two of Cushing's cases the hernia, which he called the foraminal pressure cone, reached the level of the posterior arch of the atlas and compressed the medulla. The

patient's life was saved in each case by resection of the arch. The fact of herniation and its results were beyond question. Mr. Henry had investigated the mechanism which allowed this hernia to occur in the hope that its comprehension might suggest means of preventing its calamitous effects. He had noted himself, and it had been noted by others, that death might occur in these cases when they sat up. The patient, feeling comfortable and well in the recumbent position, sat up in bed and fell forward dead as if he had been shot. He drew attention to the fact that the act of rising from the recumbent posture was begun by bending the head forwards. His conclusions were based on two simple observations and experiments. First, if one looked in the dissecting-room at the floor of the skull, after the skull cap and brain had been removed, while the cord and spinal canal were still intact, and, if one moved the head and neck backwards and forwards, the cord worked like a piston in the upper part of the spinal canal. When the parts were flexed forward the cord appeared to retire down the canal; when the head and neck were bent back the cord tended to project up through the foramen magnum. What really happened was that the cord was like a stationary piston, while the canal moved and shortened over it. When, however, the cord had not been cut and the brain was in position, the superimposed brain-stem prevented the upward projection of the cord at the foramen magnum, and its progress being checked, the cervical portion of the cord became sinuous. At the same time the brain-stem, which in the forward position of the head and neck was closely applied to the floor of the skull and, what was more important, to the odontoid process, moved when the parts were extended slightly back from the skull floor and the odontoid tip. If a sagittal section of the head were made in the cadaver, any pressure with the thumb in an outward direction upon the cut surface of the cerebellum, when the head was bent forwards, forced the brain-stem against the odontoid and the floor of the skull; when the head and neck were retroflexed it was impossible in the normal subject to force the brain-stem by this means into the same close contact with the bones. When the head and neck were flexed forward the most caudal part of the cerebellum lay directly over a space shaped like a funnel. This space, which was the cisterna magna, was largest when the head was bent forward and left most room for cerebellar hernia. When the head and neck were thrown back the size of the cisterna magna was disminished. The caudal part of the cerebellum was no longer poised over the opening of the foramen magnum, but lay over the atlas arch. The second observation was that if the brain was removed from a cadaver, the cord and spinal canal being left intact, and if water was poured through the foramen magnum until the spinal subarachnoid space was full, backward movement of the head and neck caused the level of the fluid to rise into the skull, while with forward flexion the water level fell. This meant that when the head and neck were forward the capacity of the subarachnoid space was increased in the spinal canal. If this occurred suddenly in a case where the pressure in the posterior cranial fossa was high, the potential vacuum formed below the cerebellum at the moment when it was poised directly over the foramen magnum would favour its prolapse. Subtraction of fluid by lumbar puncture was notoriously dangerous in cases of tumour of the posterior cranial fossa. The mechanism considered suggested that the position of the patient's head and neck during and after these interventions might determine his survival or death. Mr. Henry discussed the prevention of sudden death in the light of his findings.

Discussion.

The PRESIDENT said that they had all been aware for a long time of the danger of lumbar puncture in cases of increased intracranial pressure, and Mr. Henry had now explained how that danger arose. He would like to know, however, if Mr. Henry thought that death was due to direct injury of the anterior surface of the medulla or to injury to the cerebellum behind.—DR. J. SPEARES said he had seen one case of cerebral tumour in which sudden death had occurred, and he thought Mr. Henry's ideas might explain the accident which had happened. He regretted that Mr. Henry had not discussed the reason why such patients got increased intracranial pressure, and why small tumours give rise to increased intracranial pressure. He wondered if a frontal tumour would produce the same result as Mr. Henry had described.—Mr. PEARSON said he thought one was rather apt to forget the effect which the dura septa had in dividing the skull into different parts.—Mr. HENRY, in replying, said that any œdema which occurred round the tumour would help herniation very much, but why a small tumour should cause increased intracranial pressure it was hard to say, unless it had an irritative action. Many tumours caused focal symptoms, without causing actual destruction of the brain, and if the pressure were evenly distributed through the brain it was very hard to say why in these cases focal symptoms were found.

Mr. SETON PRINGLE read a paper on

Aseptic Resection of the Colon.

He first reviewed the work which had been done on this subject, describing the methods which Halstead, Highsmith, Schoemaker, and Fraser had employed. Mr. Pringle's method differs only in details from those of Highsmith and Fraser. When the bowel has been mobilised and the vessels ligatured, he applies a large crushing clamp with blades one inch wide to the intestine at the point above the growth selected for division. He then places a narrow fine forceps on the crushed portion close up to the end which is subsequently to be anastomosed. He treats the gut below the growth in a similar manner, and, on proceeding to carry out the anastomosis, the two fine clamps are approximated and the ends of the intestine united by mattress sutures, the clamps being left in position and thus controlling the bowel until the encircling line of suture is almost completed. He claimed that in this way there was less risk of infection occurring than in any of the methods previously described, and, also, that the internal shelf, or partial diaphragm left in all these operations, is less following his method. He had carried out the operation described in three cases of partial colectomy for cancer, and each made an excellent recovery without the slightest sign of local or general infection.

The PRESIDENT said that although Mr. Pringle's conception of performing colectomy without exposing the opening of the bowel during the operation was not original, his method was superior to any methods previously described. It was apparently very simple and required no special instruments. It was important to note that the intestine was divided through the crushed portion, so that there was no need to interfere with the mucous membrane. If the needle once went into the interior of the bowel the whole operation was wasted, but by Mr. Pringle's method this could not occur. He asked if Mr. Pringle had experienced any difficulty in performing the operation in cases where it had been necessary to join the small intestine to the large intestine.—Dr. D. K. MILNE-HENRY described a special form of ligature which she employed in these cases.—Mr. PEARSON asked whether Mr. Pringle had ever experienced any difficulty in withdrawing the forceps, or if they slipped off easily.—Mr. A. K. HENRY said that the diaphragm in Mr. Pringle's method was reduced to the smallest possible terms. He referred to the danger of crushing clamps cutting the bowel; he knew of four cases in which death had occurred owing to this.—Mr. A. CHANCE said that he had adopted Mr. Pringle's method. The application of the fine closing clamps required to be very accurate, it must go down just to the junction of the gut with the mesentery so as to close the opening, and yet no further. It was necessary to take a very wide bite of gut on either side to cover the clamp ends.

Mr. PRINGLE briefly replied.

Reviews and Notices of Books.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS.

Or the Action of Drugs in Health and Disease. Eighth edition, thoroughly revised. By ARTHUR R. CUSHNY, M.A., M.D., LL.D., F.R.S., Professor of Materia Medica and Pharmacology in the University of Edinburgh. With 73 illustrations. London: J. and A. Churchill. 1924. Pp. 707. 24*s*.

IT is surprising to note that it is already six years since the seventh edition of this well-known text-book was published, but after even a conservative review of discoveries made in the time that has passed, it must be granted that there is sufficient warrant for a new edition. As the author points out, the rapidity of progress is not always recognised; thus, since the 1903 edition the space allotted to remedies for specific diseases in the therapeutic index has increased five-fold. The chapter on the action of digitalis has been considerably extended to give a lucid account of the irregularities which may arise under the influence of digitalis therapy. The use of quinidine in auricular fibrillation is described, and the difference between its mode of action and that of digitalis explained. Under the heading of ergot, the author has not considered the properties of histamine and tyramine, but has confined attention to the specific alkaloid ergotoxin (or ergotamine). This treatment should help to clarify the existing confusion, for the presence of histamine and tyramine in ergot preparations has led many to the view that they are essential constituents rather than accidental contaminations of such preparations. Rather curiously, histamine is described in a section together with anaphylaxis, because of the similarity of the symptoms produced by histamine poisoning and anaphylactic shock. Although Cushny makes it clear in the text that the resemblance ends here, one cannot help thinking that some students will be misled by the juxtaposition in the title of the chapter. Local anæsthetics are described in such a way as to draw attention to the substitutes for cocaine; stress is laid on the value of eucaine for application to mucous membranes, and of novocaine and tropacocaine for injection. Finally, chapters on the vitamins and on the insulin treatment of diabetes complete the list of the main new features of the edition.

It is, in some respects, a pity that the author only allows his personality to escape in small print; we think that his remarks on organotherapy, were they known to all students, might have a considerable influence on their future practice. For example, he says: "The theory on which many of these (organ extracts) have been evolved, shows little advance upon the belief of the savage that the courage of the lion may be acquired by eating the animal's heart." The criticism is justifiable. One of the difficulties of modern research consists in keeping abreast of other adventures in different fields; but while this is a difficulty, to maintain adequate contact with the past is almost an impossibility. Many good papers are read and their contents become generally known, but probably for each of these there is another which is forgotten, when the author's work is lost. It is a particular merit of Cushny's text-book that it preserves for us a connexion with a great many papers full of important observations written 30 or 40 years ago, and in this way contributes very materially to continuity in research and the avoidance of repetition. On the other hand, for the clinician the experimental evidence for the value of every therapeutic agent is presented more carefully than anywhere else, and a clinician's success in treatment may depend on his knowledge of that evidence more than on any one other factor.

No attempt is here made to summarise the contents of what is a monumental work—all doctors should possess it.

THE PARATHYROID GLANDS IN RELATION TO DISEASE.

By H. W. C. VINES, M.A., M.D., Fellow of Christ's College, Cambridge, Foulerton Research Student of the Royal Society; late Beit Memorial Research Fellow. London: Edward Arnold and Co. 1924. Pp. 128. 10*s*.

MANY of those interested in endocrinology must have felt the desirability of having an impartial and critical review of the position of the parathyroids in relation to disease. Dr. Vines's book supplies to some extent such a need. The physiology and pathology of these organs are fully discussed, especially in their relation to calcium metabolism. There appears to be good evidence that the parathyroids do play a part in the calcium exchanges of the body. To what extent calcium metabolism and the parathyroids come into play in the causation and treatment of such disorders as varicose ulcers, gastric and intestinal ulcers, and various infective conditions, those who read the book must judge for themselves. The impression left on us is that these matters are as yet unripe for decision.

CYSTOSCOPY.

Kystoskopische Technik. By EUGEN JOSEPH, A.-O. Professor at the University of Berlin. Berlin: Julius Springer. 1923. Pp. 221. 15*s*.

THIS is one of the most satisfactory of the many German text-books on cystoscopy. It is profusely illustrated and the coloured illustrations reach an exactness of reproduction, both by artist and printer, which is seldom attained. Embodied in the book is also a large collection of pyelographs. The compilation of this work can only have come from the careful observation of a large number of patients; the text as well as the illustrations give abundant evidence of this. Whether the author writes about appearances characteristic of tuberculous infection of the bladder, the value to be attached to kidney function tests, the use of diathermy, or other urinary topics, his remarks are always worth consideration, and the book forms a useful guide to the cystoscopist.

BLOOD PRESSURE.

Cause, Effect, and Remedy. By L. T. BARKER, M.D., and N. B. COLE, M.D. London and New York: D. Appleton and Co. 1924. Pp. 154. 5*s*.

IN this little book, written primarily for the layman, the authors give in simple non-technical language an excellent account of the physiology and pathology of blood pressure. After dealing with the factors responsible for the maintenance of normal blood pressure, they proceed to discuss hypertension and its causes, emphasising the fact that no single factor is to be held responsible and showing how over-feeding, over-drinking, and, above all, over-working all play their part in the production of this increasingly prevalent malady. In a chapter entitled "What to do," they indicate clearly how high blood pressure, and incidentally, we might add, many other diseases, may best be avoided. It is fortunate that a book of this type should come from such an authoritative source, and we can strongly advise every practitioner to read it, feeling sure that he will find there not only much useful information but also the best means of imparting it to his patients.

LE SYPHILOÏDE DU JUTLAND.

By Prof. EDV. EHLERS, Médecin en Chef de l'Hôpital Communal de Copenhague. Paris: Masson et Cie. 1923. Pp. 85. Fr.9.

THIS little brochure was produced on the 150th anniversary of the first legislation for the free treatment of venereal disease in Denmark. It sets down from the beginning in 1773 to the present

day the royal rescripts, &c., on this subject. The idea of free treatment for venereal diseases, and at the same time compulsion of the sufferer to have treatment, originated in Denmark with Johan Eichel (1729 to 1817), and to his efforts the first legislation was due. The author shows that in its earlier epidemic form syphilis in Denmark caused frequently destruction and mutilation of the nasal bones. This had the effect of alarming the lay authorities and doubtless helped the passage of legislation. At the present time mutilation of the nose is infrequent in Denmark, because as a result of the measures taken in the last century and a half the disease is now a venereal malady and never assumes epidemic form. Prof. Ehlers believes that the disease attacks the nasal bones preferably in those with primary oral infection, and only supervenes when the disease is not recognised or treated till the nasal lesion begins; this happens early in the primary oral infections common in the epidemic form of the disease. He finds support for this view in the history set down in this little book.

The pamphlet is a most interesting note on syphilis in a peasant community.

PHYSIOLOGY.

Lehrbuch der Physiologie des Menschen. By W. TRENDELENBURG (Tübingen) and A. LOEWY (Davos). With collaboration of other writers. Leipzig: F. C. W. Vogel. 1924. Pp. 789 + xiv. 24*s*.

THIS book represents the fourth edition of what was known as Loewy and Zuntz's Lehrbuch, and should continue to hold the high place among text-books of physiology which that publication deservedly gained. The name of Prof. W. Trendelenburg, which replaces that of the late Prof. N. Zuntz, is highly regarded, and the publishers are fortunate to have secured his services as editor. For those to whom the work is not yet familiar, we can recommend it as one of the most complete and up-to-date text-books on physiology now current. The various chapters are written by recognised authorities on the particular branches of physiological work. The consequence is that the book is kept well up to date in all branches; physiology is now such an extensive subject that this method seems to be the only one to be relied upon. It is unfortunate that since the publication of Schäfer's Text-Book of Physiology no serious attempt has been made to bring out a joint text-book in the English language. Those able to read German, however, can console themselves adequately with Trendelenburg and Loewy's really fine edition.

WHEELER'S HANDBOOK OF MEDICINE.

Seventh edition. By WILLIAM R. JACK, B.Sc., M.D., F.R.F.P.S. Glasg., Physician to the Glasgow Royal Infirmary; Lecturer in Clinical Medicine in the University, Glasgow. Edinburgh: E. and S. Livingstone. 1924. Pp. 692. 12*s*. 6*d*.

DURING the four years that have elapsed since the publication of the last edition many changes have occurred in our outlook upon medicine. The opportunity has been taken of incorporating the more important of these advances in the new edition of this book. This has involved a rearrangement of certain of the subjects, and others have been rewritten or expanded. Certain new articles are added in the section dealing with diseases of the nervous system; they include a description of encephalitis lethargica and progressive lenticular degeneration. "Wheeler and Jack" is a household word amongst medical students. Although the manual has grown since we first knew it, it has not become too unwieldy to carry about for reference during clinical hospital work. The information which it contains is most reliable, and we feel sure that its reputation will continue unabated.

A MANUAL OF THE PRACTICE OF MEDICINE.

Prepared especially for Students. Eleventh edition. By A. A. STEVENS, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania; Visiting Physician to the Philadelphia General Hospital. London and Philadelphia: W. B. Saunders Company. 1924. Pp. 645. 18*s*.

THE eleventh edition of Dr. Stevens's manual for students has been entirely revised, reset, and brought up to date, and additional subject-matter included dealing with such conditions as thrombo-angitis obliterans and toxic goitre. In a book of this size some important subjects are necessarily treated briefly, but the text has been fairly apportioned and a clear and readable account of the essentials of medicine is presented. Over 70 pages are devoted to diseases of the skin, and here, as elsewhere, the text is liberally interspersed with prescriptions, a feature which invariably appeals to students. On the whole, the book compares favourably with other books of similar size and will prove useful for rapid revision for examinations.

A DESCRIPTIVE ATLAS OF RADIOGRAPHS OF BONES AND JOINTS.

By A. P. BERTWISTLE, M.B., Ch.B. Leeds, Resident Surgical Officer, General Infirmary, Leeds. Bristol: John Wright and Sons, Ltd. 1924. Pp. 198. 17*s*. 6*d*.

THIS is a collection of 299 silhouette radiographs of diseases of bones and joints. This method of presenting radiographs was devised by the author and the process is explained in the first part. A very useful feature of the book is the collection of X ray appearances of normal bones and epiphyses. There is great variability in the times of appearance of centres of ossification, which induced the author to add this section to the book. Pathological photographs are arranged in four sections—fractures, diseases of bones, affections of joints, and miscellaneous conditions. Almost without exception, they are representative of the usual appearances seen and very few could be omitted without the usefulness of the book being impaired. None of the photographs have been borrowed from other works, so the book becomes particularly useful as a series of photographs obtained by routine work in a general hospital. The reproductions have been very carefully and beautifully made and they show the structure of the bones almost as clearly as original plates.

CARE AND FEEDING OF INFANTS AND CHILDREN.

Third edition. By WALTER REEVE RAMSEY, M.D. London: J. B. Lippincott Co. 1923. Pp. 290. 10*s*. 6*d*.

IN addition to the various questions relating to growth, feeding, sleep, clothing, and general hygiene, the author discusses a large number of the commoner diseases of children, devoting, indeed, nearly half the volume to a consideration of these abnormal conditions. Dr. Ramsey has admirably succeeded in his aim of giving the trained nurse, for whom the book is designed, the kind of information which will be useful to her. In the chapter on diseases of the respiratory tract a welcome innovation is the protest against the use of pneumonia jackets in pneumonia and bronchopneumonia when the temperature is running high, these appliances simply keeping up the pyrexia by preventing the necessary loss of heat. The use of alcohol compresses in their stead is advised. No reference is made in the chapter on the infectious diseases to the prophylaxis of measles by the subcutaneous injection of serum from a convalescent patient.

The author does not attempt to say anything new upon his subject when novelty is the only argument in favour. The book, which is attractively written and unusually well-illustrated, is likely to remain one of the best manuals of its size for nurses, and to them we heartily commend it.

HEALING.

By the Rev. M. R. NEWBOLT. London: Society for Promoting Christian Knowledge; New York and Toronto: The Macmillan Company. 1924. Pp. 96. 2s.

IN this short book we have psychic healing introduced in its implications from the religious point of view. In a chapter on Holy Unction, a form of psychic healing which did not receive the unanimous endorsement of the recent Lambeth Conference, the author points out that, while the Eastern and Western Churches agree that the healing of spiritual infirmities is the first object of this sacrament, bodily healing being a secondary though real part of its content, there has recently arisen in the Anglican Church a use of Unction hardly to be distinguished from faith-healing. Mr. Newbolt holds the view that faith-healing and the sacrament of Unction are two separate things. In regard to psychic healing and medicine, the author, while believing that "in an ideal world the doctor and the spiritual healer would both work together, or, better still, their functions would be combined in the same man," deprecates any conflict between medicine and the church. An appendix deals briefly with Ecclesiastical Miracles, Lourdes, Christian Science, and the methods of Coué.

JOURNALS.

BRITISH JOURNAL OF SURGERY.—The April volume contains Sir D'Arcy Power's twelfth eponym on Teale's amputation.—Hamilton Bailey discusses injuries to the kidney and ureter, as seen in 135 cases at the London Hospital in the past 21 years. He shows that whereas the prognosis of uncomplicated injuries to one kidney is extraordinarily good, cases in which other organs are injured as well are usually fatal.—Sir Hamilton Ballance reports a case of spontaneous fracture of the humerus due to an intermedullary capillary angioma. The histological report by the late Prof. Shattock is given.—C. A. Moore, G. Hadfield, and L. E. Claremont review the surgical, pathological, and dental aspects of an epithelial odontome as illustrated by a case under their care.—An account is given of a visit to some of the surgical clinics of Stockholm, and are described: the clinic of Prof. Gösta Forssell at the Radium Institute, that of Prof. Jacobaeus at the Serafimer Hospital, and the work of Prof. Einar Key, and of Prof. Waldenström was also seen.—R. C. Shaw contributes a study of rhizotomy for intractable pain, and he believes that many stump neuralgias may be cured by the division of the dorsal and ventral roots, that in tabes the results completely justify the operation, and finally he draws attention to the brilliant results following the section of the antero-lateral column of the cord.—Twenty-five cases of early acute appendicitis were examined by L. S. Dudgeon and P. H. Mitchener by both bacteriological and pathological methods. The urine and the blood were examined with a view of determining any concomitant infection. Among other results they found fats present in the lumen, mucous lining, in the gland cells, and in the lymph roots of the appendix wall in the quiescent cases, and they suggest that fat absorption occurs from the lumen.—R. St. Leger Brockman's Hunterian lecture on drainage in acute appendicitis summarises the modern opinion on this subject. He points out how easily the peritoneum can defend itself, and yet how incapable of resistance are the muscles of the abdominal wall. He therefore advises closure of the peritoneal cavity with rubber tissue drainage of the muscular layers.—A. Pinoy describes a specific type of blood picture seen in cases of metastatic tumours of bone, and divides them into pseudo-pernicious and pseudo-leukæmic types.—C. A. R. Nitch describes at length that interesting condition known as cystic pneumatosis of the intestine. He believes that they fall into two groups—viz., the commoner cystic and mechanical variety and those due to infection by gas-producing organisms.—R. Lawford Knaggs divides cases of osteogenesis imperfecta into four clinical groups—viz., those occurring in the fœtus, in the infant, in adolescents, and in middle or late life. He points out the hereditary tendency of the condition, and its association with "blue sclerotics." He describes a typical histological picture of the bones, and finally discusses the pathogenesis and treatment.—W. Girling Ball gives an admirable account of the treatment of simple papillomata of the bladder by fulguration, and his paper is most beautifully illustrated by coloured drawings of the cystoscopic appearances.—The following rare or obscure cases are published: (1) J. H. Mather, a pin found in the appendix; (2) H. Nockolds, volvulus of the stomach; (3) C. P. G. Wakeley, a case of carcinoma of the breast, dying 13½ years after operation from diffuse secondary deposits; (4) A. J. Blaxland, intussusception of the sigmoid 3½ years after an intussusception of the appendix; (5) C. P. G. Wakeley, acute intussusception in a bilocular femoral hernial sac; (6) M. B. Hannay and R. F. Young, carcinoma of the solitary kidney.

New Inventions.

AN ANOSCOPE AND SYRINGE FOR THE "INJECTION TREATMENT" OF HÆMORRHOIDS.

THE anoscope is an anal speculum which has been made to my specification for use instead of the proctoscope or rectal speculum in the injection treatment of hæmorrhoids. It is 1½ in. long, but when the obturator is in position it measures 3 in. The advantages of the instrument are: (1) By its use the piles are in the correct position for injection, or at most it need only be withdrawn half an inch; (2) a bigger field is brought into view than is possible when the proctoscope is used, and the exact size and number of the hæmorrhoids present and the best site for inserting the needle can be more readily ascertained; (3) the anoscope can be passed more easily and with less discomfort than the proctoscope. The anoscope is not so satisfactory for the treatment of very fat patients as owing to its short size the buttocks overlap it; a proctoscope with an oblique opening and smooth unraised edge—i.e., the same design as the anoscope—which also has been made for me, will be found more suitable in treating this type of case. The syringe for the carbolic solution is somewhat similar in design to Dawson's dental syringe, but is made of glass with metal jointures, after the fashion of the "Record," so that one can see the solution and make sure that no bubbles or foreign matter are injected with it. It is graduated in minims to hold 40 minims, and special wide-bore needles, ½ in. long, are supplied with it. Very little claim for novelty could be made for this syringe except that it answers the query "What is the best type of syringe for use in the 'injection treatment' of hæmorrhoids?"

The anoscope and syringe are made by, and can be obtained from, Messrs. Arnold and Sons (John Bell and Croyden, Ltd.), 50–52, Wigmore-street, W. 1.

P. KENNEDY MURPHY, M.D. Dub.
Bedford-square, W.C.

THE LANCET.

LONDON: SATURDAY, JUNE 7, 1924.

THE MEMORANDUM ON ENCEPHALITIS LETHARGICA.

THE existing prevalence of encephalitis lethargica, or epidemic encephalitis as this disease is more often called, has increased the interest concerning this comparatively new malady, an interest which is not restricted to the medical profession, but which has spread to the lay press where it is now referred to under the odd description of "sleepy sickness." A brief but at the same time authoritative compendium on a prevailing malady is always welcome, and the Ministry of Health have done good service in issuing a short memorandum[1] at the present time, based on the previous document of 1921, but revised and extended in accordance with recent knowledge and in the light of observations made during the epidemic outbreaks of this year. Primarily intended for local authorities and for medical officers of health, the memorandum is one which may be commended to busy medical practitioners who have neither the opportunity of consulting nor the leisure to read more comprehensive treatises, such as Prof. ARTHUR J. HALL'S Lumleian lectures[2] on epidemic encephalitis, which appear this week in book form.[3] After referring to possible appearances of epidemic encephalitis in the past, the memorandum briefly traces the history of the disease since 1917, the year when it first became recognised as a clinical entity. Its present distribution is world-wide, and most of the countries of Europe, Asia, America, and Australasia have been affected by it in greater or less degree. This extensive occurrence during the last five years argues much for the evolutionary theory of the malady. We are too apt to forget that evolution proceeds ever onwards, and that side by side with the elimination of old diseases, new diseases may appear or reappear after long absence through the originating of a species of organism hostile to man or, alternatively, by reason of the taking on of inimical parasitic function by a previously harmless saprophyte. On the recognition of the disease notification was promptly required by the Central Health Authority in England and Wales. As a result our figures for the incidence of the malady are the most complete of any country. In the five-year period 1919–23 the following cases were notified: 1919, 538 cases; 1920, 914 cases; 1921, 1470 cases; 1922, 454 cases; and 1923, 1025 cases. During the first and second (uncompleted) quarters of the present year the unprecedented number of 2468 cases has been notified (provisional figures). This epidemic outbreak appears to be confined to the British Isles. For the week ending May 24th, 1924, the number of notified cases shows a slight diminution on the provisional figures, 261 cases having been notified, as against 282 in the previous week and 290 in the week ending May 10th. The figures for London have fallen from 43 to 28. It seems possible that the diminution is really greater than appears from the figures, owing to the large amount of public and medical attention which has been given to the epidemic and consequently to the recent identification of slight cases which would not otherwise have been diagnosed. The cases remain scattered, indicating that the wide diffusion of the infection continues.

In spite of much laboratory work the exact identification of the causal organism still eludes the pathologist. The memorandum pays a tribute to the important experimental work of MCINTOSH and of LEVADITI, but emphasises that much further work is required. Investigations on material obtained from the present epidemic are proceeding under the auspices of the Medical Research Council, and are linked up with researches on the whole question of filter-passers and herpetic viruses. It is only by comprehensive attacks of this character that success is likely to be obtained. A short general description is given of the clinical forms of encephalitis lethargica, and reference is made to the clinical alterations in type seen in the epidemic of 1924. "The malady," the memorandum states, "is on the whole less severe, and in many cases the prodromal period appears to exceed the usual seven days. The onset is often ascribed to influenza, and a fortnight or more elapses before the definite signs of encephalitis are manifest. Patients do not remain for lengthy periods in profound stupor or coma, and some have made an unusually rapid recovery; catalepsy is rare." Myoclonic forms are common, and fibrillary twitchings of the abdominal muscles are not infrequent. Signs of hyperactivity of the brain—sleeplessness, delirium, excitement, myotatic irritability—predominate. These changes in clinical characters were drawn attention to by STALLYBRASS[4] as prevailing in Liverpool last year. The French and Italian records show that as early as 1919 such variations had occurred to an appreciable extent on the continent.

The Ministry of Health consider that the case-mortality of encephalitis lethargica since 1917 may be given as between 20 and 50 per cent. These are wide limits and the higher figure is probably the more accurate. On the deaths so far reported in the present epidemic, the case-mortality has varied in different cities from 12 to 21 per cent. of the notified cases. It is too soon yet to make a correct estimation. Stress is laid in the memorandum and in the covering circular on the sad after-effects of epidemic encephalitis, the mental symptoms, the Parkinsonian syndrome, excito-motor and other sequelæ. The diffusion of knowledge on this question is highly desirable, as the sequelæ are of both neurological and medico-legal importance. The original acute attack may be so mild as to pass disregarded, and it is not until alterations in conduct or profound nervous manifestations arise that the true condition is recognised. It is held that the degree of infectivity of encephalitis from person to person is of a low order. Nevertheless, the existence of multiple cases of the disease in the same household, as well as in institutions, must not be lost sight of, and the study of these intensive outbreaks is most likely to be informative as to the channels of spread of the disease. After referring to treatment and abortive mild or "transient" cases, the remainder of the memorandum is devoted to the action which it is desirable for medical officers of health to take on receipt of notification or on learning of suspected cases—a brief chapter in applied hygiene, which we print in full elsewhere.

[1] Memorandum on Encephalitis Lethargica, 45/med., revised. H.M. Stationery Office. 1924. 1*d*.
[2] THE LANCET, 1923, i., 731.
[3] Bristol: John Wright and Sons. 12*s*.
[4] C. O. Stallybrass: Encephalitis Lethargica, Some Observations on a Recent Outbreak, THE LANCET, 1923, ii., 922.

LEAD AND CANCER.

Prof. BLAIR BELL's work on the effect of lead in preventing the growth of tissues generally and especially that abnormal method of growth which results in cancer will be familiar to readers of THE LANCET of Feb. 9th, 1924. In an address to the North-Western Branch of the Society of Medical Officers of Health, which is published in the June number of *Public Health*, he returns to the subject in a fresh way. After pointing out that he regards malignancy as an atavistic reversion of somatic cells to a condition where they have many of the properties of chorionic epithelium, to which lead is particularly poisonous, he draws attention to the rarity of cancer among those exposed to lead poisoning. The general technical manager of the United Alkali Company is responsible for the very interesting statement that cancer is unknown among the large number of "chemical plumbers" employed by the firm. These men are engaged in making and repairing vitriol chambers, acid cisterns, and the like, fusing the seams with an oxy-hydrogen blowpipe and so being rather freely exposed to volatilised lead; they suffer from plumbism, but not from cancer. The district secretary of the United Operative Plumbers and Domestic Engineers' Association, through whose hands all medical certificates had passed for 25 years, confirmed the absence of cancer in this particular occupational group. The statistics are not, as the author freely recognises, satisfactory or conclusive; they do not, for example, take into consideration age or, which is often of special importance in industrial data, previous and subsequent occupation. The same criticism applies to some further figures relating to the incidence of cancer in towns with lead in the water-supply, and to the increase of cancer which is associated with a decrease in plumbism—the latter being, of course, a form of numerical analysis open to great fallacy. But the facts are put forward in a tentative way to justify the more complete investigation which the author has not been able to carry out. The case of the chemical plumbers certainly seems to be worth further inquiry. The address concludes with an appeal for more activity in the campaign for the prevention of cancer, and here Prof. BLAIR BELL is less precisely constructive than we could have wished. If the 10,000 deaths per annum from cancer of the breast and uterus are, as he says, almost entirely preventable, the exact lines of preventive action are worth defining. But he rightly points out that the discovery of the cause of disease does not necessarily lead to its control—e.g., tuberculosis—and without at present advocating a universal mild plumbism, he indicates soot, hot drinks, and parturition per vaginam as contributory causes which demand careful thought.

THE YOUNG OFFENDER.

THE establishment of Children's Courts was a wise step, involving the recognition of the importance of separating such as are still at an exceptionally plastic and receptive age from others whose influence or example might have a disastrous effect upon them. It eliminated the risk of publicity, and recognised the desirability of children being dealt with by those who have special sympathy and understanding of the young. But there is a growing feeling that the present system does not go far enough. While the old idea that delinquency must be dealt with by punishing somebody, whether it be by fining the parents or birching the offender, still has great influence; nevertheless, the idea is slowly coming home to many that, instead of being content with primitive and rule-of-thumb methods, it would be wiser to devise some definite means for inquiring into the causes, for dealing with those causes, and eradicating them. It is easier for the medical profession to accept this point of view than it is for the legal. Medical psychologists are concerned with the individual; they regard misconduct as the expression of a state of mind which is abnormal in its social relationships; they seek to ascertain the causes of this state, and if possible to deal with them. But lawyers are not concerned primarily with the individual, but with the protection of the community, and are inclined to think that this can be attained by the deterrent effect of punishment, alike on the individual and the community. Without going fully into this side of the problem, it may be said that the record of the large amount of crime committed in the eighteenth century, when severe penalties were imposed for comparatively minor offences, raised doubt as to the deterrent effect on others, while crime has continued to diminish as punishment and prisons have become more humane in recent years. So, too, while punishment often has a restraining influence on the individual, it is clear that in certain cases an individual's state of mind may be such as to render him undeterred by punishment; indeed, punishment may have the opposite effect. Years ago insanity was recognised as constituting a state of irresponsibility, for which treatment, and not punishment, was required. In 1913 it was enacted that mental defectives also, who committed offences, should be treated and not punished. There are other less well-defined conditions, such as incipient insanity, degrees of dullness not constituting actual mental defect, and cases of mental conflict, in which it is essential that a report on the psychological state should be placed before the court, if justice is to be done. Nor must it be forgotten that in recent years many reports have been published of the complete change in conduct and moral character that has sometimes followed an attack of encephalitis lethargica in a young person. All physicians, too, would agree that abnormal physical conditions sometimes constitute an important factor in juvenile delinquency, both in themselves and also in fostering a feeling of inferiority. Such considerations make it reasonable to ask that every juvenile delinquent should be examined by a medical practitioner, who is also a psychologist, before he is punished or put on probation. In the Children's Court a psychological examination is all-important. It is only possible to judge a child's behaviour, his responsibility for action, and his knowledge of the consequences of any particular action in terms of his "mental age." A child of 12, with a mental age of 6, will probably choose companions of 6 years old, and his behaviour will be more or less that of a 6-year-old child.

Mental defect, in its higher grades at least, can only be diagnosed by the expert with long experience. The magistrate who thinks he can recognise it himself at a glance has only idiots and imbeciles in his mind's eye, and does not know that the courts are still sometimes overlooking not only the feeble-minded but even actual imbeciles. The last report of the Prison Commissioners contains several examples of such procedures, which resulted in mental defectives being sent to prison, and subsequently left on discharge without care and supervision. Other reports show that even when an enlightened minority has provided the necessary machinery, magistrates some-

times do not realise the importance of making use of it. Five years ago Mr. GERALD BEASLEY, then chairman of the Birmingham Justices, introduced a scheme whereby an expert medical psychologist was available to examine any cases referred by the Bench. While this scheme has been used in many adult cases serious enough to be remanded in custody, the annual reports of the Birmingham Justices show that in each of the last two years only four of the less serious cases remanded out of custody have been put back for special examination. Yet this group includes all the cases in the Children's Court, of whom as many as 200 are put on probation in the course of a year. In many of these probation cases there must be physical and psychical abnormalities which ought to be dealt with first. There is the further consideration that the ordinary probation officer is often only able to classify a home as respectable or not, and has not had the training which would enable him to say that some respectable homes have an atmosphere in which it is impossible for the delinquent to develop satisfactorily. Such facts justify the recent action of the People's League of Health in sending a deputation [1] to the Home Office to state their opinion that, even where facilities are provided, the magistrates sometimes do not make proper use of them, thus depriving the child of his rights. Omission to do so is an economic blunder. All investigations into crime show the importance of the habitual offender, while all are agreed that the habitual offender nearly always begins as the young delinquent. The first offender, therefore, so far from being a case to be dismissed with a few words of well-meant advice, requires thorough investigation. Many inquiries have shown that, though it be his first appearance in court, he has often been on the wrong path for years, so that it may be the last opportunity of effective help. Those physicians who have had opportunities of seeing something of the workings of Children's Courts have recognised that unwise treatment of the child offender tends to produce deterioration of character, and to manufacture the habitual criminal. They have been impressed by the consequent moral and economic injury done to the community. They claim that an accurate knowledge of the mentality of delinquent children is essential if the children are to be dealt with justly and satisfactorily. They ask that in each case of actual delinquency the mental and physical history of the delinquent child should be investigated, and as complete a knowledge as possible obtained of his present condition, environment, and associations. Without such an inquiry and examination offenders may be punished when no punishment should be inflicted, and when, on the contrary, medical treatment is imperative.

It is not claimed that every case that comes into court must be examined. Offences against by-laws, such as playing football on the streets, should be treated in another way, requiring rather a social investigation into the facilities for play and recreation in the district. In the opinion of many they should be dealt with in the child's home rather than by bringing him into court. If a considerable group of delinquent children could be examined by medical experts, valuable information would be obtained as to the proportion of mental defectives among young delinquents. Classification of the others would show how far medical treatment was necessary, and give a useful guide as to the arrangements required for dealing with these cases. In Belgium the characteristics, peculiarities, and tendencies of delinquent children are observed by qualified persons and reported upon to the courts before the cases are adjudicated. There is no doubt that a fairly large group of young delinquents commit offences as a result of defective upbringing and faulty surroundings. They are not mentally abnormal, but living, as they do, in an atmosphere of selfishness, vice, immorality, and general depravity, they simply copy the example of those around them. Left where they are they fail to acquire any sense of moral obligation, and grow up with definite anti-social propensities, to become confirmed criminals. But there is clear evidence to show that if children of this type can be put into satisfactory surroundings they may become efficient and useful citizens. There is another group in whom the delinquency, even if of a serious kind, such as burglary, is largely due to a spirit of adventure, daring, and enterprise, which, when directed into healthier channels, may result in the development of valuable qualities. The sympathetic hearing accorded by the Home Secretary to the deputation from the League encourages the hope that the arrangements in the Children's Courts will be still further improved, and soon.

[1] The medical members of this deputation were as follow: Dr. E. A. Hamilton-Pearson, Dr. E. D. Macnamara, Dr. Christine Murrell, Dr. D. Orr, Dr. W. A. Potts, Dr. R. G. Rows, and Dr. A. F. Tredgold.

THE KASR-EL-AINY HOSPITAL AT CAIRO.

VISITORS to the Royal Academy may have been struck by the impressive architectural drawings in illustration of the projected rebuilding of the Kasr-el-Ainy Hospital in Cairo. In so far as that building was designed for a particular island site, unfortunately those pictures would seem to mean nothing. While the necessity for a new hospital as clinical and teaching centre has been admitted on all hands, it has for some time, we believe, been known that the site selected had not met with complete Egyptian approval, and in the end might not receive the buildings. This position now seems well confirmed, and the building must be indefinitely postponed if the announcement is accurate that a forfeit has been paid to the architects who had the contract. From a public as well as from a scientific point of view this is a matter of regret, for undoubtedly there is real need in Cairo for a new hospital and new medical school buildings. The delay is attributed to the need for economy, although the dislike of the King of Egypt to the project is well known. But a third reason for inactivity at the moment, and the one that must be operative in all shades of opinion, is the growth of the view that new hospital accommodation for Egypt is mainly needed in the provinces; for it is admitted that while there is only one hospital bed to about 15,000 inhabitants in the rest of the country, there is one bed to 800 in Cairo. This means that in the provinces the sick must often travel by river for as much as three days before reaching the Kasr-el-Ainy Hospital. As a matter of fact, both schemes require accomplishment; Cairo is in as great need as the country in general. In many ways, to bring hospitals to the people is a preferable policy, within limits, than to bring the people to a hospital, but there can be no doubt that a great centre for clinical treatment, scientific research, and medical education is required. Egyptian political affairs are in a transitional state, but scientific development among the Egyptians in respect of medicine will make them lean towards the scheme for a large scientific and clinical centre in Cairo, and an alternative site on the edge of the desert, in the neighbourhood of the capital, has already been spoken of. If this plan were carried out, subsidiary hospitals would be required in the crowded portions of the great city—there are over 800,000 people in Cairo to-day—and at these subsidiary institutions much emergency work and other weeding-out would be done, leaving for treatment at the centre only the suitable cases.

Annotations.

"Ne quid nimis."

THE BIRTHDAY HONOURS.

THE proportion of medical to lay honours in the long list which was published on the occasion of the King's birthday is an indication of the ever-increasing part which medicine plays in the affairs of the State, both at home and abroad, and is also a reflection of the growing recognition that the health of the people is an important factor in the spread of empire. In the Order of Merit appears the name of Sir Charles Scott Sherrington, President of the Royal Society, whose physiological reputation is world-wide; and among the baronets that of Sir Humphry Davy Rolleston, President of the Royal College of Physicians of London. A feature of the list is the inclusion of the names of Dr. Janet M. Campbell, Senior Medical Officer for Maternity and Child Welfare to the Ministry of Health, and Chief Woman Medical Adviser to the Board of Education, and Dr. Margaret Ida Balfour, Joint Secretary to the Dufferin Fund, the first of whom becomes a Dame and the second a Commander of the Order of the British Empire. Dr. John Utting, Lord Mayor of Liverpool in 1917–18, Chairman of the Finance Committee of the Liverpool Corporation, and Lieut.-Colonel T. J. Carey-Evans, I.M.S., Surgeon to the Viceroy, become knights. Dr. Malcolm Watson, of the Federated Malay States, also becomes a knight bachelor in recognition of his services in connexion with the prevention of malaria. Colonel Richard Herd, I.M.S., Surgeon-General with the Bengal Government, to be C.I.E. Mr. William Fairbank, Mayor of Windsor, 1919–20, Surgeon-in-Ordinary, H.M. Household, Windsor Castle, is promoted to K.C.V.O. In the Order of St. Michael and St. George Dr. Aylmer William May, P.M.O., Northern Rhodesia, is made Companion. In the Order of the British Empire, in addition to the appointments already mentioned, appear the names of Dr. George Adlington Syme, who becomes a K.B.E., in recognition of his services to the State of Victoria; Dr. W. C. Bowling Prendergast, in recognition of his services in combating lead poisoning. Prof. Edward Provan Cathcart, F.R.S., Professor of Chemical Physiology in the Glasgow University; Dr. Andrew Milroy Fleming, Medical Director, Southern Rhodesia; Col. James Crawford Kennedy, R.A.M.C., and Dr. San C. Po, Municipal Commissioner, Bassein, Burma, who become C.B.E.'s; while Dr. Walter Musgrave Eaton, Assistant Medical Director and Medical Superintendent, Ingutsheni Mental Hospital, Bulawayo, Surgeon-Commander Robert William Basil Hall, R.N., Major Frederick Emilius Roberts, R.A.M.C., and Dr. François Auguste Rouget, Medical Superintendent of the Civil Hospital, Mauritius, receive the O.B.E. Dr. Samuel Benjamin Jones, Medical Officer, Anguilla, Leeward Islands, receives the M.B.E. The Kaisar-i-Hind Medal of the First Class for public service in India has been conferred upon Dr. M. R. Ry Pazhamarneri Sundaram Ayyar Chandra Sekhara, Ayyar Avargal, Director of the Tuberculosis Institute and Hospital, Madras, upon Rai Bahadur Upendra Nath Brahmachari, additional physician to the out-patient department of the Medical College Hospital, Bandal, and upon Rai Bahadur Lala Mathra Das, assistant surgeon in the Punjab. We feel constrained to include in our hearty congratulations to these members of the medical profession the name of Mr. T. P. O'Connor, the new Privy Councillor, who, while being the Father of the House of Commons, is also a veteran journalist.

A DIFFICULT DECISION.

THE Law Lords gave their considered judgment last week on the main issue raised in the Court of Appeal on the Russell case. This judgment is set out on p. 1174. There is one comment upon the course and the result of this case which seems not inappropriate here. Medical men are frequently as parties and witnesses made aware of the uncertainty of litigation, and in the latter capacity not seldom have it thrown in their teeth that in respect of some question of scientific expert opinion other witnesses of equal qualification and capacity differ from them. It has from time to time been pointed out in our own columns that it is not for lawyers to blame medical science and its practitioners for this, because they must be aware of a constant and frequent lack of unanimity in the application of legal science by its recognised experts. In the Russell case a particular point of law, vital to both parties, has been decided by an eminent judge, Mr. Justice Hill, in a particular manner. Mr. Justice Hill was upheld in his decision to admit a certain class of evidence by Lord Sterndale, then Master of the Rolls, Lord Justice Warrington, and Lord Justice Scrutton; he has since been further supported by two Lords of Appeal, Lord Sumner and Lord Carson, and none could assert that Lord Sumner is a less learned or a less painstaking lawyer than Lord Birkenhead. Mr. Justice Hill has, however, been over-ruled by Lord Birkenhead, Lord Finlay, and Lord Dunedin, and their decision prevails. When upon a point of law six eminent authorities hold one thing and three others the exact opposite, the views of the three prevailing, so that the six must be treated as having been wrong, it seems fair to argue that divergences of opinion in technical and scientific matters may exist between experts in the science involved, without the holders of divergent views being open to reproach on account of the absence of agreement between them.

RENAL EFFICIENCY IN NORMAL PREGNANCY.

THE question as to how a kidney which shows some slight defect of function will respond to the increased amount of work which accompanies pregnancy is often a very pressing one for the obstetrician. A definite reply must be secured without delay, since clinical or laboratory methods, which involve prolonged investigation, may involve the onset of serious complications before a decision has been arrived at. Dr. G. Barco, assistant in the obstetric clinic at Turin, presided over by Prof. G. Levi, draws attention[1] to the clinical utility of the dilution and concentration test, by which he claims that in the majority of instances, excluding a few doubtful and complicated cases, it is possible to settle the functional inefficiency of the kidney by its incapacity to eliminate water and to estimate the amount of all the waste products and thus establish a kind of balance of the solid material which passes the renal filter. The dilution test brought forward in 1900 by Kowesi and Roth-Schultz consists in the drinking, when the bladder has been emptied, of 1000–1500 c.cm. of water on an empty stomach, and in the estimation during the subsequent four to five hours of the quantity and specific gravity of the urine passed every half hour. Under normal conditions the following characteristics are observed: (*a*) The maximum amount of urine eliminated in half an hour is 500 c.cm. This is of the highest importance, as it is the measure of the maximum velocity of glomerular secretion and by itself alone indicates a good glomerular reaction. (*b*) The elimination of water drunk ends in four hours. (*c*) The quantity of water eliminated through the kidneys in the four hours following its ingestion is never lower than 91 per cent. of the water taken in. (*d*) The specific gravity falls to 1004–1001 in the first two hours pari passu with the marked increase in the urinary amount; after five to six hours it returns to its former figure. (*e*) There is never any increase in body-weight, showing that water is not retained in the organism. Under abnormal conditions it is found that (*a*) the amount of water eliminated every half

[1] Rivista Medica Subalpina, Turin, January, 1924.

hour is materially reduced; (*b*) the elimination of water altogether in the four hours after ingestion is decidedly below that taken in, showing that elimination is more or less retarded; (*c*) corresponding with diminished volume there is little decrease in specific gravity. On the basis of these characteristics three types of abnormal behaviour to the test may be distinguished. (1) Retarded type, in which even though all the water introduced is eliminated in four hours, there is delay in the elimination of the greater portion; the initial rapid rise of diuresis is wanting. This condition indicates disturbed renal function. (2) Dangerous type, showing grave functional lesion, in which each portion eliminated is small and equal, even sometimes absent. In the four hours only a few hundred cubic centimetres are eliminated, while the specific gravity is scarcely lowered. (3) Extra renal type, which is met with in cases where, although the renal function is intact, the water tends to pass into the tissues and serous cavities. Although the initial diuresis is rapid and the amount of the first portion eliminated is conspicuous, yet almost all elimination ceases after two hours. But the elimination in four hours is incomplete, because a good deal of water has already penetrated into the tissues and cannot be eliminated by the kidneys. The concentration test is simple. Half an hour after the completion of the dilution test, and again six hours later, a full meal is given without liquid. The urine is collected every two hours, and its specific gravity taken. A healthy kidney under these conditions shows a rapid increase in urinary specific gravity. Should this be small or lowered, renal insufficiency is indicated. By carrying out these two tests in rapid succession it is said to be possible to obtain sufficiently precise information of the total functional renal efficiency. From the diagnosis the next step to prognosis is easy, and it is made possible for the obstetrician to judge how the state of maternity will be supported by the organism. Dr. Barco pleads for a more extended and routine use of these tests. To neglect them would be equivalent to neglecting percussion of the lungs and heart on the ground that the results are capable of varying interpretations and be subjected to influences which may diminish their value. The relative simplicity of the test is certainly a strong reason in favour of its being tried on an extensive scale, and the problem is so grave that trial of such methods is to be strongly advocated.

THOMAS HODGKIN, PATHOLOGIST AND PHILANTHROPIST.

To the current issue of *Guy's Hospital Reports* Sir William Hale-White contributes an informing paper on Thomas Hodgkin, whose name is indissolubly connected with a disease of lymphatic glands. Hodgkin was a notable man in many ways. His father, John Hodgkin (1766–1845), was a grammarian and a tutor to the children of wealthy families. Thomas, born in 1798, was educated at home, becoming fluent in Latin, Greek, French, Italian, and German. He learned his medicine at Guy's Hospital and abroad, graduated M.D. at Edinburgh in 1823, after having, in 1822, attended clinical instruction given by Laënnec at the Necker Hospital, to which circumstance is due the introduction of the stethoscope to Guy's Hospital on his return from Paris. Hodgkin visited Germany and also Rome, where he lodged with a Dr. Viale, who was surgeon to the Inquisition. In 1827 Benjamin Harrison, treasurer of the hospital, determined to make really good the Medical School of Guy's Hospital, now separated from that of St. Thomas. He saw the importance of morbid anatomy and appointed Hodgkin as lecturer, a post which he held until 1837, when the death of Dr. Henry Cholmeley created a vacancy upon the medical staff. For this post Hodgkin and Babbington were candidates and the latter was appointed. Hodgkin then left Guy's Hospital and started in private practice. In 1842 he was appointed lecturer on the theory and practice of medicine to St. Thomas's Hospital School, but his lectures, says Sir William Hale-White, were very diffuse, "and it is difficult to imagine that they fixed the attention of his audience." Besides medicine Hodgkin was always deeply interested in philanthropic works; he was one of the founders of the Aborigines Protection Society, and for many years he used to travel with Sir Moses Montefiore in the East to aid Jews and relieve their miseries. It was on one of these journeys that he contracted dysentery of which he died in 1866 at Jaffa, where his grave is marked by an obelisk of syenitic granite. The work by which Hodgkin is chiefly remembered rests upon a paper read by him in 1832 before the Medical and Chirurgical Society, entitled "On Some Morbid Appearances of the Absorbent Glands and Spleen," which attracted little attention at the time. This is not to be wondered at, for only four of the cases mentioned in the paper were examples of what we now know as Hodgkin's disease, and the writer seems to have laid but little stress upon this case. It was not until Bright, and after him Wilks, in 1856 recognised the importance of Hodgkin's paper that the discovery was properly attributed to him. Wilks, indeed, discovered the disease independently, but directly he found, after reading Bright, that Hodgkin had forestalled him, he hastened to acknowledge his precedence. Among other works of Hodgkin was a volume "Lectures on the Means of Promoting and Preserving Health," delivered at a mechanics' institute about 1830, and setting forth the harm which flows from filth, overcrowding, bad sanitation, horrible houses, drunkenness, bad food, want of vaccination, lack of fresh air, and exercise. Sir William Hale-White has succeeded in making Thomas Hodgkin live again in the minds of the present generation.

OSMICS.[1]

THIS is the second number of a useful little production. The first number of *Osmics*, containing an introduction and 500 bibliographical references, was issued in 1922 and was found useful by many engaged in researches into the difficult subject of olfaction in its many bearings. Between the two issues has appeared the entertaining book by Dr. Dan McKenzie,[2] which has interested many people in what was regarded as an abstruse topic. The issue of a second number of *Osmics* has been prompted by the hope that a further bibliography of the literature on the organs and sense of smell, and on odorous substances, will facilitate and encourage research into the various problems involved. The entries are made without comment of any sort upon the value of particular books or papers, but full references are given, leaving the reader to ascertain whether he has found what he wants. Nothing more has been attempted in the first two issues, but the author suggests that further numbers will appear and possibly summaries of original research into the various aspects of osmics, provided there is an adequate demand for such a "clearing-house." We hope the demand will be obtained, for the value of the publication will be enormously increased by the inclusion of some critical information. Smell has been the least cultivated of the senses, so that there is reason to hope that, if the subject receives something of the attention which has been given to the senses of hearing and sight, the study of odours should reach a higher scientific plane. But one practical point constitutes a difficulty at the beginning. The classification of smells suffers from the absence of the mathematical analysis which can be employed in optics and acoustics. There is consequently no accurate nomenclature of smells, though many attempts have been made to establish some system here comparable to the classification which has been set up in regard to seeing and hearing. Arising out of

[1] Osmics: The Science of Smell. By John H. Kenneth, M.A. Edinburgh: Oliver and Boyd. 1924. 2s. net.
[2] Aromatics and the Soul, reviewed in THE LANCET, 1923, ii., 1086.

a report on the treatment of war wounds made by that distinguished veteran, Prof. W. W. Keen, in 1917 at the request of the National Research Council of America, a correspondent in THE LANCET pointed out how extremely convenient it would be if it was possible to name the smell of a wound in such a precise way that exactly what was intended could be recognised by investigators at a distance. But the conclusion was arrived at that this would imply the bringing together of smells into a system of scales or octaves which had so far only been attempted with moderate success and in a limited manner, the allusion being to the work of Septimus Piesse in classifying perfumes. Reference is given in *Osmics* to this work, which was published originally some 20 years ago. In it there is set out a series of odours in parallel with the musical scale, the attempt being to show how it should be possible to make a bouquet corresponding to a chord. The gamut of odours thus constructed did suggest a law of octaves according to the investigator's ingenious arrangement, but, as has been pointed out, however, in these columns before, while some persons associate certain colours with smells and others speak of certain musical notes as suggesting corresponding colours, the occurrences are not proved to have any scientific interest.

HOUSING CONDITIONS IN GERMANY.

PRIOR to the war, housing facilities in Germany were vastly better in the larger towns than in the villages and country generally, especially from a sanitary point of view. Here the rooms of dwellings were small and frequently overcrowded. Nevertheless, on the whole, a quantitative lack of accommodation did not exist, and a qualitative lack only in old-time buildings; any untoward influences were counterbalanced by the presence of open spaces. Since the war, however, owing to the general depression and lack of material building has almost ceased; the housing shortage has been accentuated by the advent of over a million refugees from ceded territories, whilst the birth-rate has, if anything, increased. A comprehensive review of the housing conditions in their relation to social and industrial health has recently been published by Prof. E. Friedberger,[1] director of the Institute of Hygiene at the University of Greifswald. Greifswald is in Pomerania, and the writer considers it a typical example of a small German town. Here the post-war shortage is one of smaller dwellings; only 21·5 per cent. of middle- and lower-class families seeking accommodation were successful in 1920. Students were, and still are to a very great extent, poorly provided for, though a few are given sleeping facilities by well-to-do families. In a large number of labouring-class dwellings and municipal houses chosen at random, it was established that the average room-space was only 7·2 cubic metres (approx. 267 cub. feet) per person, and the window: floor area varied from 1:14 to 1:69. The rooms were damp, and those used as kitchens were unhygienic and small, serving as bedrooms as well. Ten per cent. had no window at all; in the majority of cases there was no kitchen range. There was one water-tap between five families, representing about 40 persons; bathing facilities were unavailable and sanitary arrangements thoroughly bad. Lighting was provided for by means of petroleum in less than 12 per cent. of cases, in 7 per cent. by calcium carbide, 19 per cent. by tallow candles, 9 per cent. by some oil substitute, in the remainder there was no provision. On an average there were 2·6 persons per bed, for which in 35 per cent. there was no linen. The incidence of disease has decidedly increased, though the relative percentage of tuberculosis is lower than usual, as death occurred rather from enfeeblement due to want of nourishment. Amongst children rickets is but slightly increased, as they are constantly in the sun and fresh air; but their physique is exceedingly poor. The measures adopted by the authorities to combat the housing shortage were planned in 1920, and consisted in building a small number of houses adapted to one and more families. Each dwelling comprises two rooms and a kitchen, which, perhaps not ideal, are at any rate light and dry, and can be heated. Additionally, a small garden is attached, where some live-stock can be kept and a modest amount of vegetables grown. Electric light and water are laid on. The sewage is retained in tanks below the ground, and is used as garden manure. Investigation on the birth-rate showed an average of 6·3 pregnancies per family; 90·5 per cent. of the expectant mothers were unable to avail themselves of the local clinics, owing to their being compelled to work right up to the day of their confinement; 70 per cent. of the total pregnancies ended in live births, the remainder of the infants died shortly before or after delivery; 70·5 per cent. of the infants were nursed by their mothers for varying periods; the same percentage was obliged to be fed at 15 months of age on food partaken of by adults. The hygiene was similarly unsuitable. Such are the conditions under which the present generation in Germany is growing up, and their effects will be only patent in the next few decades.

[1] Untersuchungen über Wohnungsverhältnisse. Jena: Gustav Fischer. Pp. 112. 3 gold marks.

EPITHELIOMA OF THE TONSIL.

AT the last annual meeting of the Medical Society of the State of New York Dr. Leon H. Smith[1] read a paper on epithelioma of the tonsil based on the study of 40 patients who had been treated at the Buffalo State Institute for the Study of Malignant Disease. The cases were divided into the four following groups: (1) cases with the new growth confined to the tonsil and excellent general condition (4 cases); (2) cases with early cervical metastases and good general condition (10 cases); (3) cases with well-marked metastases and poor general condition (14 cases), (4) hopeless cases with advanced toxic cachexia (12 cases). Thirty-six of the patients were males and 4 females. The ages ranged from 28 to 82, the average age being 55. As regards the earlier medical history, only 12 stated that they had had previous attacks of sore-throat or tonsillitis; 75 per cent. admitted excessive indulgence in tobacco, and only three had not used nicotine in any form. Ten had well-marked dental caries, and seven moderate dental caries accompanied by pyorrhœa. In three there were upper and lower plates. In only two patients was the Wassermann reaction positive. The chief complaints were sore-throat and discomfort which were present in at least 50 per cent. A biopsy was performed on each patient, care being taken to remove only a small portion of tissue if dental caries or oral sepsis was present. In the differential diagnosis the following conditions had to be excluded: gummata, tuberculoma, papilloma, sarcoma, and Vincent's angina. The possibility, however, of the coexistence of syphilis or tuberculosis with cancer should not be overlooked. The earlier patients were treated by X rays, but the results in the vast majority were unsatisfactory, retrogression of the neoplasm and improvement of the general condition being only temporary. During the last three years a combined method of treatment has been adopted. Radium emanations in glass beads are inserted into the growth where they are allowed to slough out or remain encysted, and deep X rays or the new radium pack are applied to the cervical regions. Apart from cases of a fulminating type, patients in whom the symptoms had lasted one to three months only were favourable subjects for treatment. After the lapse of three months the cases became more refractory to treatment and after six months altogether inoperable. Seventeen patients in the present series died from hæmorrhage, two from general sepsis, four from suffocation due to œdema of the glottis, and three from profound toxæmia. In conclusion, Dr. Smith emphasises the importance of early diagnosis and the prompt institution of radiation therapy.

[1] New York State Journal of Medicine, March 7th, 1924.

DOMINIONS MEDICAL HOSPITALITY.

THE Dominions Hospitality Committee, Sir William Hale-White, President, has arranged its programme for the entertainment of overseas visitors. The appended list has been circulated to all visitors who have registered their names, and these are requested to reply as soon as possible, indicating the functions which they would like to attend.

Programme.

June 13th: Address by Sir Almroth Wright and visit to his laboratories at St. Mary's Hospital, Paddington, at about 4 P.M.

June 20th: 8.15 P.M., Kensington Town Hall, Cavendish Lecture by Sir Robert Jones, followed by conversazione by the West London Medico-Chirurgical Society.

June 23rd: 2.15 P.M., visit to Greenford (Messrs. Lyons and Co., Ltd., works). Charabancs to leave 1, Wimpole-street, 2.15 P.M. Tea provided.

June 26th: Visit to the laboratories of Messrs. Parke Davis, at Hounslow. Luncheon and tea at Hounslow. Dr. J. Stanley White will give a demonstration of matters of pharmacological interest. Charabancs will leave 1, Wimpole-street about 12 noon. Return via Windsor.

June 30th: Reception and ball in the Guildhall by the Corporation of London.

July 8th: Dinner at the Apothecaries' Hall, by the Society of Apothecaries.

July 9th: Luncheon at the Town Hall, Portsmouth, by invitation of the mayor, followed by a tour arranged by the naval authorities (leaving London in the morning, and returning in the evening).

July 17th: Luncheon by THE LANCET.

Visit to Lord Mayor Treloar Cripples' Home, Alton. (*Date to be arranged.*)

Visitors who have not received the above notice should inform the Hon. Secretaries, Mr. A. E. Mortimer Woolf, 94, Harley-street, W. 1, or Mr. E. T. C. Milligan, 86, Harley-street, W. 1, as soon as possible.

FLUELESS GAS STOVES.

THE report of the joint committee, formed by the Society of Medical Officers of Health and the Royal Sanitary Institute to consider the use of gas stoves for domestic and workshop heating where no provision is made for the escape of flue gases to the outer air, has now been issued. The Society of Medical Officers of Health was represented by Prof. H. R. Kenwood, Dr. D. C. Kirkhope, Dr. F. N. Kay Menzies, and Dr. E. H. Snell, and the Royal Sanitary Institute by Prof. A. Bostock Hill, Dr. J. S. Owens, Dr. L. C. Parkes (chairman), Mr. J. Osborne Smith, and Mr. H. D. Searles Wood. Much valuable information on the use of flueless gas stoves was received from medical officers of health of large cities, including the cities of London, Glasgow, Liverpool, Nottingham, Leeds, and from the metropolitan borough of Stepney. Dr. J. S. Owens submitted for the consideration of the committee a report on flueless gas fires from a hygienic aspect, to which special attention is drawn. He discusses the products of combustion and the questions of humidity, ventilation, and losses in flue, and comes to the following conclusions as to the use of flueless fires: (*a*) There is a problematical saving of up to 30 per cent. in heating efficiency by abolishing the flue; (*b*) the quantity of CO_2 and water in the air of a room are greatly increased; (*c*) sulphur in the gas contaminates the air in the form of SO_2 or SO_3; (*d*) the ventilating effect is practically nil; (*e*) if there is a leakage or the gas tap is not fully closed, the gas escapes into the room; (*f*) if combustion is imperfect owing to wrong design, the stove going out of order, or being incorrectly used, poisonous products—such as CO—escape into the room; (*g*) there is a great temptation for users to restrict ventilation purposely so as to economise heat. From the evidence submitted to them the committee are of opinion that whilst there is little or no evidence of any injurious effects upon health by the use of these flueless gas stoves under ordinary conditions—i.e., where the rooms are of fair size, sufficiently ventilated, and not overcrowded—there is always an element of risk of the escape of CO gas into the room, as pointed out in (*e*) and (*f*) of Dr. Owens's summary. So convinced are the committee of the necessity of a very free ventilation existing where flueless gas stoves are in use that—bearing in mind the usual absence of this free and effective ventilation in living rooms, bedrooms, workrooms, &c.—they think it desirable to discourage the introduction of these stoves and to express the opinion that their use can only be justified in such places as entrance halls, passages, and landings, where ventilation is free and where occupants do not remain for any considerable length of time.

INDUSTRIAL FATIGUE RESEARCH.

EACH succeeding annual report, and this is the fourth, of the Industrial Fatigue Research Board tells of progressive advance in the organisation and methods employed in this difficult field of research. New facts brought to light continue to support those obtained by earlier work, so that gradually the principles underlying human activity are being ascertained. Industrial depression during the past two years has militated against the gathering of much useful information under normal conditions; but the opportunity has been seized upon for following up problems by intensive laboratory research. An instance is the value of interpolating short rest pauses during long spells of work, already studied on light repetitive work; here laboratory and industrial observations confirm one another and indicate a beneficial effect upon output from rest pauses scientifically used. Investigations are in progress into such general subjects as accident causation, the design of machinery, the physiology of ventilation, sickness, and mortality, while research has been conducted into the principles governing muscular action, weight carrying, and tests for physical efficiency, and is being pursued into vocational selection, the legibility of type, and other matters. Clearly the scope of the work is wide, and the need for it great. In addition to a general review, the report contains contributions from individual investigators; the first of these, by Miss M. Smith, is a clever survey of psychological problems confronting an investigator in industry; we seem to know the explosive manager whose inflated egotism is easily wounded, the over-anxious man with much irritability and little self-reliance, and that other one whose obsession is tidiness; and, on the other side, the truculent worker resentful of criticism, the ultra-weak worker with lost individuality, and the one who welcomes monotony as providing free scope for mental fancies. Each and all these personalities react differently and interfere with the validity of data collected for measuring output. Mr. E. Farmer, in a discussion of the method of grouping by differential tests, presents a disquisition on logic in which the principles associated with the name of Jevons are displayed under a new nomenclature in an industrial environment; nevertheless, the presentation of the subject is good and useful. An excellent case is made out by Mr. S. Wyatt for establishing schools of training for industrial operatives, particularly for cotton-weavers; he shows that existing methods of training are haphazard, inefficient, and uneconomical, and rightly points out that everyone "possesses abilities which are more suitable for one industrial process than another, and it becomes necessary to consider the possibilities of finding for each individual the industrial task most suited to his requirements." The last contribution is by Dr. H. M. Vernon, and deals with the use and significance of the kata-thermometer; although it is rather technical in places, it is a clear and readable exposition of the subject.

Dr. John Parkinson will give the address in medicine before the Canadian Medical Association at their fifty-fifth annual meeting to be held at Ottawa from June 17th to 20th. The subject of his address will be the Diagnosis of a Healthy Heart.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LXXIV.—TREATMENT OF GLAUCOMA.

THE most useful classification of glaucoma from a practical point of view is (1) secondary glaucoma, (2) primary chronic glaucoma, (3) primary acute glaucoma.

By secondary glaucoma is meant glaucoma which occurs as a complication or as a result of some other disease of the eye; thus an intra-ocular neoplasm, repeated attacks of iritis or cyclitis, or thrombosis of the central retinal vein may be the responsible cause. The subjects of such conditions will mostly have been under special care for the primary disease and the possibility of the complication will have been anticipated; I do not, therefore, propose to deal with this group.

Primary glaucoma is more common in females and is of unusual occurrence before middle age; myopes are in large measure immune from it and hypermetropes are predisposed to it. The essential feature of the disease is an increase of the intra-ocular tension, even though in chronic cases the increase may be present for short periods only during the day, and thus easily overlooked. If we consider the course of the aqueous flow within the eye, we see that it is secreted into the posterior chamber of the eye by the columnar cells which clothe the ciliary processes; some of it infiltrates the vitreous body, but the greater part passes forward over the front of the lens, through the pupillary aperture into the anterior chamber, and leaves the globe by filtering into the crypts of the iris, and by gaining access to the canal of Schlemm and the spaces of Fontana through the angle of the anterior chamber.

There are three chief points at which this circulation may be obstructed: (*a*) The ciliary processes may become so swollen that they come into contact all round with the margin of the lens, the vitreous chamber being completely shut off from the aqueous chambers; the vitreous will swell, the lens, and with it the iris, will be pushed forward, making the anterior chamber more shallow, tending thereby to close the angle of the chamber and so to obstruct the exit of the aqueous from the eye; this is believed to be the course of events which leads up to the occurrence of an attack of acute glaucoma. (*b*) The second point of possible obstruction is at the pupillary aperture. After repeated attacks of iritis the iris may become so completely stuck to the lens upon which it rests that the flow of aqueous through the pupil is prevented; in this case the posterior chamber becomes distended, the iris becomes bulged forwards (iris bombé), and so the angle of the anterior chamber becomes occluded; this would be an example of secondary glaucoma. (*c*) A third point, the angle of the anterior chamber, is the site of obstruction in primary chronic glaucoma; the anatomical configuration of a small hypermetropic eye, with a relatively large lens and a shallow anterior chamber, and the increased size of the lens as age proceeds, are predisposing causes, factors causing an anterior chamber, which from the first was shallow, to become still more shallow.

Primary Chronic Glaucoma.

The reduction in depth of the anterior chamber which results from the growth of the lens is an exceedingly gradual process, and the period of transition between the point at which the exit of the aqueous is efficient and the point at which it becomes no longer quite adequate is thus a very gradual transformation; the onset of the disease is correspondingly insidious, and symptoms in the early stages are fleeting and unobtrusive.

Diagnosis.—In a number of cases the cornea is obviously so small and the anterior chamber so shallow that it is clearly necessary to exclude glaucoma, even though no symptoms may be present. There may be a history of attacks during which objects are seen as through a mist, or as if the room was filled with smoke, or, owing to corneal œdema, lights may appear to be surrounded by wide rainbow-coloured haloes; such symptoms as these are very suspicious. There may be complaint of rapidly increasing difficulty with reading. The optic disc, being a weak part of the tunics of the globe from its being perforated by the bundles of the optic nerve fibres, becomes herniated backwards, producing the so-called glaucomatous cupping, and there is developed a constriction of the visual fields which is most marked at the upper nasal side.

Treatment.—It is sometimes assumed that a high general systolic blood pressure is likely to cause a heightened intra-ocular tension, and that therefore reduction of the blood pressure should have a part in the treatment of such cases. In this connexion I have shown that there is good reason for believing that a pressure in the brachial artery of, say, 220 mm. does not imply that the pressure in vessels of the size of those within the eye is at all raised; secondly, I have shown that taking primary glaucoma patients as a class, they do not have blood pressures above the normal for individuals of their age, and on the other hand, that as a class, patients with very high blood pressures show no increase of intra-ocular tension; and thirdly, a view which has many adherents is that in a majority of individuals it is not possible greatly to lower the systolic blood pressure except by methods which are so drastic as to disturb very seriously the general constitutional well-being. In spite of what has been said above, I need hardly insist that anything which advances the bodily or mental welfare of the patient is greatly to be advocated in the treatment of the disease we are considering.

Local Treatment.—All local treatment is directed against the intra-ocular tension. There will always be a certain number of cases where operative treatment for various reasons is not available, as, for example, ill-health or infirmity, unwillingness on the part of the patient to submit to operation, and so non-operative treatment has to be resorted to. In non-operative treatment the one drug that is of value is eserine; by causing contraction of the pupil it drags the iris away from the angle of the anterior chamber, and so does what is possible to relieve this channel of exit of any obstruction which a dilated pupil, with its accompanying thickened iris, might produce. The drug is usually used in the form of ¼ per cent. solution of the sulphate to be dropped into the eye night and morning, or, if attacks of mistiness occur at regular times of the day, it is well to anticipate such attacks by using the drops a little beforehand. Excessive reading should be avoided, and a protection against bright light by means of tinted glasses is advisable. The best prospect of arresting the disease is by means of operation. All modern operations have for their object the relief and prevention of the high intra-ocular tension, and to this end the formation of a permanent fistulous communication between the anterior chamber and the subconjunctival space is aimed at so that the aqueous filters slowly away amongst the subconjunctival tissues in addition to its normal route of exit. The operation most in vogue is that of sclero-corneal trephining. I have recently introduced a small modification which gives improved results—namely, the careful sewing up of the conjunctival incision with a fine and accurately applied continuous silk stitch, so as to make the incision watertight from the first.

Acute Glaucoma.

In sharp contrast with the slow, insidious, painless progress of chronic glaucoma, this form of the disease is very acute. Prodromal attacks of mistiness of vision, headaches, rainbow rings, and increasing presbyopia are common, and previous transitory subacute attacks may have occurred. The

attack is characterised by pain radiating along the branches of the fifth nerve, or referred to the whole side of the head; there may be vomiting; the sight is rapidly reduced; the pupil is partly dilated, loses its circular shape, and fails to react to light stimulus; the cornea is œdematous, so that the fundus cannot be seen with the ophthalmoscope; and, above all, the tension of the eye is so increased that unless tenderness prevents a reasonable examination, no one, however inexperienced, will have difficulty in satisfying himself with regard to this crucial sign. Though the diagnosis of acute glaucoma need present little difficulty, the condition is still frequently overlooked, being labelled biliousness or gastritis with deplorable results. In such cases the eye itself, the cause of all the mischief, escapes treatment for several weeks, by which time the sight is most often completely and permanently destroyed. Acute glaucoma is a rather rare disease, but though a medical man may never have come across a case, he should always bear it in mind as a possibility. The chief local condition with which acute glaucoma may be confused is acute iritis; here again a mistaken diagnosis will lead to serious detriment to the eye, for the vigorous use of atropine, which is imperative in the treatment of iritis, is the worst possible treatment for glaucoma; differentiation between the two conditions, however, is seldom difficult, and we may conveniently tabulate the most helpful points in parallel columns:—

Acute Iritis.	*Acute Glaucoma.*
May occur at any age, but especially from 16 or 18 onwards.	Rare under the age of 45.
Pupil small and circular.	Pupil semi-dilated and irregular.
Sight somewhat dim.	Sight greatly deteriorated.
Tension normal or at most a little raised.	Tension greatly raised.
Corneal surface a little dulled.	Corneal surface very œdematous.
ATROPINE IMPERATIVE.	ATROPINE INADMISSIBLE.

Treatment.—The condition is so painful and the loss of sight so great, that patients seldom demur to operative treatment at the earliest possible moment; there is a great deal, however, that can be done to relieve the condition where arrangements for operation cannot immediately be carried out, and some surgeons advocate the employment of these preliminary measures as an adjunct in all cases; they consist of the instillation of eserine every quarter of an hour for six times; the application of two or three leeches to the temple of the same side; fomentations to the eye; and a smart purge; eserine should always be instilled into the other eye for fear of an attack of glaucoma in it. By these means the tension of the eye can usually be sensibly reduced, and the subsequent operation performed with a reduced risk.

Operation.—A general anæsthetic, preferably chloroform, is desirable, but if there is a serious contra-indication to its use the operation may be carried out under local anæsthesia by injecting 2 per cent. novocaine solution under the conjunctiva and deeply into the orbit. There is a wide consensus of opinion amongst ophthalmic surgeons that a rather wide iridectomy is the best form of treatment; the results are usually good and permanent.

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F.R.C.S. Eng.,
Assistant Ophthalmic Surgeon, St. Bartholomew's Hospital; Surgeon, Moorfields Eye Hospital.

LONDON DERMATOLOGICAL SOCIETY.—The annual oration will be delivered at 4.30 P.M. on June 11th, at St. John's Hospital, Leicester-square, London, W., by Prof. M. Oppenheim, of Vienna, on Affections of the Skin Caused by Occupation and Profession. The oration will be illustrated by lantern slides in colour. Prof. Oppenheim will be the guest of the society at dinner at 6.30 P.M., at the Criterion Restaurant, in a private room (entrance in Regent-street). The price of each ticket is 7*s.* 6*d.* Fellows who desire to attend or to bring guests are asked to notify the secretary, Dr. A. Knyvett Gordon, at 10, Bedford-square, London, W.C. 1, before the meeting.

THE GENERAL MEDICAL COUNCIL.

DURING the remainder of the May session of the General Medical Council, which was continued throughout last week, the business consisted of the election of members to certain committees, the reception and discussion on various reports, and the consideration of penal cases.

Report of Committees.

The report of the *Examination Committee* was presented in two parts: Part I. giving an analysis of the annual tables for 1923, and Part II. relating to other matters, among which is a statement showing that the percentage of rejections in midwifery in the qualifying examinations is always lower than in either of the other two subjects, medicine and surgery, except in the case of Cambridge University. It is pointed out that this may be due to the fact that there is no clinical examination in midwifery in many centres, and also to the fact that it is a subject covering a smaller field and therefore more easily absorbed by the student.

While the Council's inspectors had reported favourably on the standards set and maintained in medicine and surgery, the inspector of midwifery had commented unfavourably on the omission of any practical test in the examinations on this subject in many of the final examinations; but the most recent returns show that while 17 bodies now hold such an examination, six do not—namely, the Universities of Cambridge, London, Liverpool, and Aberdeen, the English Conjoint Board, and the Apothecaries' Society of London; the University of Aberdeen, however, is about to introduce such an examination. In the University of London the percentage of rejections has fallen since candidates were not required to pass in all three subjects simultaneously. The percentage of rejections is highest by those bodies who are examining bodies only, since candidates are unknown to the examiners, and class records cannot be taken into consideration. The system of visitation to various examining bodies by members of the Committee has produced valuable results and will be continued for the present.

In the discussion which followed Mr. Waring said that in the case of a body such as the Conjoint Board, it would be impossible to accept class certificates, as they would come from so many sources as to render it impossible to reduce their value to a common denominator. Sir Francis Champneys said that ten minutes was far too short a time in which to examine a candidate in midwifery; the half-hour given at Cambridge was, however, quite satisfactory. He also thought that vaginal examinations were most important, but that many bodies objected to their taking place during qualifying tests. The report was agreed to.

The *Pharmacopœia Committee*, after considering certain correspondence on the matter, decided to suggest to the Council that it was desirable for this country to be represented at the proposed conference in Brussels in 1925. As regards the proposed International Bureau, however, more mature consideration would be needed before any decisions were arrived at. The committee suggested to the Council that the Lord President should be informed that assistance would be given in choosing delegates to the Brussels Conference, on the understanding that they should only report to the Government, and not be given any powers to bind either the Government or the Council. The report was agreed to.

The *Finance Report* shows an income of £2785, £196 more than in 1922. A heavy loss is still incurred in the publication of the Register, but the committee do not see how it could be made more informative in the manner of a directory and so increase its sale, which to the public at present is only about 200 copies a year. They feel that this pecuniary loss must be borne in carrying out this important statutory function.

Canada.—A new arrangement has been arrived at with the provinces of Alberta, Manitoba, New Brunswick, Nova Scotia, Ontario, and Prince Edward Island in relation to the registration of medical qualifications obtained in Canada being registered in this country. The arrangements with Quebec have not yet been concluded.

Penal Cases.

The following penal cases were deliberated on by the Council:—

The Case of Charles Russell Corfield.—This practitioner, registered as of 205, High-street, C. on M., Manchester, L.M.S.S.A. Lond., 1919, had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you committed adultery with Gladys Nellie Frankish, a married woman, with whom you stood in professional relationship, of which adultery you were found guilty by the decree of the Probate, Divorce and Admiralty Division (Divorce) of the High Court of Justice, dated March 12th, 1923, and made absolute on Sept. 19th, 1923, in the case of Frankish *v.* Frankish and Corfield, in which you were the co-respondent; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The Council found that the facts alleged had not been proved to their satisfaction, and the case was accordingly dismissed.

The Case of Bryan Buckley Sharp.—This practitioner, registered as of 20, Rupert-street, London, W. 1, M.R.C.S. Eng., 1918, L.R.C.P. Lond., 1918, M.B., B.S., 1921, U. Lond., had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you on Jan. 30th, 1924, on the application of Miss Ada Sher for a Foreign Office passport (supported by her declaration in the usual form as to address, age, national status, and purpose for which required), made a declaration stating 'that to the best of my personal knowledge and belief of the above-made declaration of the said Miss Ada Sher is true, and that I can *from my personal knowledge* of her vouch her as a fit and proper person to receive a passport,' whereas you had no previous knowledge of the said Ada Sher, which declaration was untrue, misleading, and improper; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The Council found that laxity had been proved, but did not direct erasure from the Register.

The Case of Trevor Owen Williams. (Adjourned from Nov. 28th, 1922, and further adjourned from Nov. 30th, 1923.)—This practitioner, registered as of 4, Ullet-road, Liverpool, M.B., Ch.B., 1913, U. L'pool, M.R.C.S. Eng., 1913, L.R.C.P. Lond., 1913, had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, and a captain in the Royal Army Medical Corps, you were on Oct. 14th, 1917, tried by a General Court Martial overseas on a charge of drunkenness whilst on active service in the field on Oct. 7th, 1917, of which charge you were found guilty and sentenced to be dismissed from His Majesty's Service, the finding and sentence being duly confirmed; and that, being a registered medical practitioner, and while giving evidence before Mr. Justice Greer at the Assizes at Liverpool on Feb. 2nd, 1922, you were drunk, being reprimanded by the judge for being in that condition; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect; and that you were at the city of Liverpool police-court convicted of the following misdemeanour, viz.: On June 23rd, 1922, of being drunk and disorderly and fined 10*s.* and 10*s.* doctor's fee."

At the conclusion of the hearing on Nov. 30th, 1923, the President announced the Council's decision as follows: "The Council, in consideration of the communications from the Salvation Army, have adjourned the further hearing of the case of Trevor Owen Williams until the May session of the Council in 1924."

At the resumed hearing of the case this session, the Registrar having read the notice of inquiry, the Council's solicitor placed the present facts of the case before the Council. He read correspondence which had taken place with the Salvation Army authorities, showing that Mr. Williams had not kept his promise to refrain from drink.

The Council, having deliberated on the matter, the President delivered the following judgment: "Mr. Williams: I have to inform you that you have been proved to have been convicted of the misdemeanours alleged against you in the notice of inquiry, and that the Registrar has been directed to erase your name from the Medical Register."

The Case of John Christie Forbes. (Adjourned from Nov. 28th, 1923.)—This practitioner, registered as of 40, Mayfield-road, Edinburgh, L.R.C.P. Edin., 1895, L.R.C.S. Edin., 1895, L.F.P.S. Glasg., 1895, had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner: (1) You on numerous occasions permitted your clerk, Mrs. Wyman, to sign in your name and issue certificates required for National Health Insurance purposes, and that in many of such cases you had not examined the patient although so stated in the certificates, which were untrue, misleading, or improper. The insured persons and the certificates in question were as follows—viz.: (*a*) Robert Martin, 20 certificates; (*b*) William Stewart, 19; (*c*) Archibald Harris, 14; (*d*) N. Strachan, 18. (2) You permitted the said Mrs. Wyman on three occasions to sign in your name and issue orders for three separate prescriptions for an insured person, Archibald Sharp, without having first seen or examined him; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The Council did not see fit to erase Dr. Forbes's name from the Register.

The Case of Nowroji Merwanji Tarachand.—This practitioner, registered as of Mansfield, Nottingham, M.R.C.S. Eng., 1893, L.R.C.P. Lond., 1893, had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you: (1) On August 4th, 1923, signed in anticipation of your holiday a number of intermediate certificates of incapacity for work for eight insured persons on your list, which certificates stated that you had examined these person on certain dates—namely, August 6th, 7th, and 8th, 1923—whereas on such dates you were away on your holiday; (2) on your return from such holiday signed a first certificate and notice of sickness for an insured person on your list which you antedated, and which stated that you had examined the patient on August 8th (such certificates being required for National Health Insurance purposes); which certificates were untrue, misleading, or improper; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

In this case judgment was postponed till May, 1925.

The Case of Shridhar Bheekajee Gadgil.—This practitioner, registered as of Mhow, India, L.M.S.U. Bombay, 1898, M. 1900, F. 1915, R.C.S. Eng., L.R.C.P. Lond., 1900, had been summoned to appear before the Council on the following charge:—

"That you were on Sept. 21st, 1923, at the Marlborough-street police-court, convicted of the following misdemeanour—namely, of insulting behaviour, and were fined 40*s.* and 2 guineas costs, or 11 days' imprisonment; and that on your appeal on Oct. 12th, 1923, to the County of London Quarter Sessions from the decision of the said court the said decision was confirmed, and you were ordered to pay the taxed costs of the respondent of the said appeal."

Judgment was postponed till the May session, 1925.

The Case of Henry Love.—This practitioner, registered as of Avoca, Mitcham, Surrey, M.B., U. Dub., 1878, L.R.C.S. Irel., 1878, had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you by your countenance or assistance knowingly enabled Mrs. Elizabeth Woolsey and Mrs. Munt, women not certified under the Midwives Acts, 1902 and 1918, to attend women in childbirth, and Mrs. Marie Stiler a woman not entitled to practise midwifery in the administrative county of Surrey, also to attend women in childbirth, under cover or pretence that such women were attended or to be attended by you or by the said Mrs. Woolsey, Mrs. Munt, or Mrs. Stiler, under your direction, and that in some of these cases you signed maternity benefit certificates and gave notifications of birth, thereby enabling each of them, the said Mrs. Woolsey, Mrs. Munt, and Mrs. Stiler, in contravention of the said Acts, to practise as a midwife; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

Judgment was postponed till May, 1925.

The Case of James Robert Stott, O.B.E. (Consideration adjourned from May 31st, 1923.)—This practitioner, registered as of 202, Ewell-road, Surbiton, Surrey, M.B., Ch.B., 1910, B.Sc. (P.H.), 1912, M.D., 1918, U. Edin., had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you by your countenance or assistance knowingly enabled one Annie Hennings, a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, and that in some of such cases you signed maternity benefit certificates, thereby enabling the said Annie Hennings in contravention of the said Act to practise as if she were certified thereunder; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

After a short deliberation, the President delivered judgment in this case as follows: "Mr. Stott: I have to inform you that the Council have considered the evidence as to your conduct during the interval which you have tendered, and they have resolved: That they do not see fit to direct the Registrar to erase your name from the Medical Register."

The Case of Henry Bowen Perkins.—This practitioner, registered as of 105, Dock-road, Tilbury, Essex, M.R.C.S. Eng., 1890, L.R.C.P. Lond., 1890, had been summoned to appear before the Council on the following charge:—

"That you were on Nov. 13th, 1914, at the Grays Petty Sessions convicted of being drunk, and were fined 1*s.* and 4*s.* costs; that you have abused your position as a medical man by behaving improperly at your surgery to the following persons—viz.: (1) On or about Nov. 21, 1922, to Mrs. ——, who had called for a certificate for her husband, who was a patient of yours; (2) on or about Jan. 28th, 1924, to Mrs. ——, who was a patient of yours; and (3) on or about Feb. 19th, 1924, to Miss ——, who was a patient of yours; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

After deliberation, the President announced the judgment of the Council as follows: "Mr. Perkins: I have to inform you that the conviction alleged against you in November, 1914, of a misdemeanour has been proved to the satisfaction of the Council. The facts alleged against you in regard to the abuse of your position as a professional man, however, have not been proved, and the case is dismissed."

The Case of Jonathan Allan Thornhill.—This practitioner, registered as of Ingleside, Newnham, Glos., L., L.M., 1891, R.C.P. Irel., L., L.M., 1891, R.C.S.Irel., had been summoned to appear before the Council on the following charge:—

"That being a registered medical practitioner: (1) On April 15th and 18th, 1923, while attending a Mr. J. P., who was seriously ill from influenza, you were so far under the influence of drink that your power of judgment and sense of responsibility were affected to a degree rendering you unfit to be in charge of a serious case of illness. (2) On April 23rd, 1923, you gave to the said J. P., a National Health Insurance certificate stating that you had examined him on that date and that he was incapable of work by reason of broncho-pneumonia, whereas you had not seen or examined the said J. P. on that date or since April 18th, 1923; which certificate was untrue, misleading, or improper; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The Council found that the first part of the charge had not been proved to their satisfaction, and as regards the second part they suspended judgment till November of this year.

The Case of Henry Spencer Hughes.—This practitioner, registered as of Galen House, Lozells-road, Birmingham, M.R.C.S. Eng., 1894, L.R.C.P. Lond., 1894, had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you by your countenance or assistance knowingly enabled one A. D., a woman not certified under the Midwives Acts, 1902 and 1918, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, and that in some of such cases you signed maternity benefit certificates and gave notifications of birth, thereby enabling the said A. D., in contravention of the said Acts, to practise as if she were certified thereunder; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The facts having been proved to the satisfaction of the Council, judgment was postponed till the May session, 1925.

The Case of Harold Walmsley.—This dental practitioner was registered on Dec. 29th, 1919, as of Northwood, Prestwich Park South, Manchester, L.D.S. V.U. Manc., 1919. The Dental Board, having considered the complaint against the said Harold Walmsley, reported as follows:—

"The said Harold Walmsley did not attend and was not represented. Service of the notice of inquiry was proved by the solicitor. The following facts were established by the evidence: Harold Walmsley was convicted at the assizes held at Northampton on Jan. 21st, 1924, of indecently assaulting a male person and of committing an act of gross indecency with a male person and sentenced to nine months' imprisonment in the second division. The evidence before the board consisted of a certified copy of the said conviction, a report of the trial from the *Northampton Mercury* of Jan. 25th, 1924, and three testimonials dated in April and May, 1924. The board have, therefore, resolved to transmit to the General Medical Council their finding—namely, that the name of Harold Walmsley ought to be erased from the Register."

Mr. Walmsley did not appear, nor was he represented. The President announced the decision of the Council as follows: "I have to announce that Harold Walmsley, having been found by the Dental Board to have been convicted of the misdemeanour alleged against him in the notice of inquiry, the Council has directed the Registrar of the Dental Board to erase from the Dentists Register the name of Harold Walmsley."

The Case of Abraham Frank (or Franks).—He was registered on Sept. 4th, 1922, as of 201, High-street, Shoreditch, London, E. 1, Dentist, 1921. The Dental Board, having considered the complaint against the said Abraham Frank, reported as follows:—

"The said Abraham Frank did not attend and was not represented. Service of the notice of inquiry was proved by the solicitor. The following facts were established by the evidence: On the prosecution of the Dental Board, the said Abraham Frank was convicted on March 25th, 1924, at the Old-street police-court, London, of aiding and abetting his son, Percy Frank (or Franks) to practise dentistry, he not being registered in the Dentists Register, and was fined 20 guineas and 5 guineas costs. On the same day the said Percy Frank was also convicted of practising dentistry, not being registered so to do, and was fined 20 guineas and 5 guineas costs. Abraham Frank is, or was, a hairdresser, and it did not appear that he had ever practised dentistry or was capable of doing so. His son, the said Percy Frank, who was under the age required by the provisions of the Dentists Act, 1921, for registration, practised dentistry at 201, High-street, Shoreditch, in the name of his father. Abraham Frank was on the premises at 201, High-street, Shoreditch, in attendance in the rooms where his son was practising, and had covered him in such practice. Abraham Frank had applied for registration under Section 3 (1) (*a*) of the Dentists Act, 1921, and had lodged the statutory declaration required by the regulations of the Dental Board. It appeared from the evidence given at the police-court that the statutory declaration had, in fact, been signed by the said Percy Frank in the name of his father, and that the father could sign his own name but not well, nor could he read writing very well. The evidence before the Board consisted of the accompanying documents: (1) A certified copy of the said conviction; (2) the depositions taken at the Old-street police-court on March 25th, 1924, and the documents exhibited thereto. The Board, therefore, resolved to transmit to the General Medical Council their finding—namely, that the name of Abraham Frank ought to be erased from the Register."

Mr. Frank did not appear in answer to his notice nor was he represented. The Dental Board were represented by their solicitor, who stated that he had nothing to add to the report and finding. The President announced the decision of the Council as follows: "I have to announce that the Dental Board having found the facts alleged against Abraham Frank in the notice of inquiry to have been proved, the Council have directed the Registrar of the Dental Board to erase the name of Abraham Frank from the Dentists Register."

The President announced that the Registrar of the Dental Board had been directed to restore to the Dentists Register the name of Walter Ernest Tate.

Medicine and the Law.

RUSSELL v. RUSSELL IN THE HOUSE OF LORDS.

JUDGMENT was delivered on May 30th in the House of Lords in the Russell divorce suit which for many months has excited the attention of the public and which, owing to the nature of the principal issue involved and of the evidence relating to it, may fairly be said to possess special interest for medical men. The decision arrived at does not, or may not, absolutely conclude the question of divorce raised by the petition, but only disposes of the main issue raised in the Court of Appeal, and since then in the House of Lords, as to whether evidence given by Mr. Russell in the divorce court regarding the marital relations between himself and his wife was properly admitted. In Lord Birkenhead's words this question was whether by the law of England evidence of non-access may in proceedings for divorce be tendered by a spouse and received by a court with the object, or possible result, of bastardising a child of the marriage. The House of Lords, by a majority consisting of Lord Birkenhead, Lord Finlay, and Lord Dunedin, has answered this question in the negative, Lord Sumner and Lord Carson dissenting. Consequently, if the petitioner proceeds further in the particular case under decision, his own evidence must be excluded, and he must rely on such other evidence as he may be able to tender.

Lord Birkenhead, in his judgment,[1] after stating the issue involved, referred at length to the pronouncement of the law enunciated by Lord Mansfield in the case of Goodright *v.* Moss in 1777: "The law of England is clear that the declarations of a father or mother cannot be admitted to bastardise the issue born after marriage." This, his lordship held, covered the case of evidence introduced for the purpose of obtaining divorce, and had not been modified or altered by the Act of 1869, Section 3 of which enables husbands and wives to give evidence in proceedings instituted in consequence of adultery. Lord Birkenhead laid stress on the anomaly which would arise if evidence should be admitted in divorce proceedings, which would tend to prove a child born in wedlock to be illegitimate, whereas it could not be admitted, when at some other date and in other proceedings, the declaration of the child's illegitimacy might be sought. According to his lordship, Lord Mansfield's declaration that the rule was founded upon "decency, morality, and public policy," did not have the meaning ascribed to it by the Court of Appeal, and that court had gone "strangely wrong" upon this point. What Lord Mansfield meant was that a deeply-seated domestic and social policy rendered it unbecoming that evidence should be received from such a source and with such a possible result; it had nothing to do with the reception in divorce courts of evidence of an "indecent" character. In his lordship's view a long series of later judgments had affirmed and re-stated the rule in Goodright's case. The Act of 1869 did not make husbands and wives competent witnesses upon all points relevant to the issue between them, but only enabled them to give evidence not otherwise inadmissible. The witnesses had become competent but they might not give this evidence.

Lord Finlay and Lord Dunedin delivered concurring judgments.

Lord Sumner, in a very learned and exhaustive judgment,[1] dissented from the view of Lord Birkenhead, holding that, although the rule laid down by Lord Mansfield applies still in cases the object of which is to establish the illegitimacy or legitimacy of a child born during wedlock, it should not be applied in cases in which the object aimed at is the dissolution of marriage, and in which the husband and wife are the only witnesses having actual knowledge of the facts as to which they can give evidence. Lord Sumner agreed that Lord Mansfield did not exclusively refer to what is in itself unseemly or disgusting, but he protested against the injustice done to the memory of the late Lord Sterndale, in thinking that he had in the Court of Appeal gone "strangely wrong" in his application of Lord Mansfield's word "decency." Lord Sumner was "afraid that the sanctity of marriage intercourse passed into the limbo of lost causes and impossible loyalties in 1857."[2] "The divorce court sits," Lord Sumner continued, "that the secrets of married life may be divulged." There could be nothing but prejudice to decorum if it were made plain that material facts were being kept from the court. It appeared to him a logical and a legal solution to recognise that a divorce petition and a legitimacy issue are distinct, and to apply Lord Mansfield's rule to legitimacy issues only. It had been said that absurd and incongruous results might follow. It might be found in one case that a bastard child had been born and a marriage might so be dissolved, and yet the same child might have to be declared to be no bastard in legitimacy proceedings: but this need not cause dismay. The same results would have followed if in the trial of the divorce case non-access had been proved by evidence other than that of the husband. Other incongruities could be discovered in other instances of two trials occurring in the courts and relating to the same facts. Lord Mansfield's rule had never been applied in divorce cases, and in Lord Sumner's view it was undesirable to extend its scope. He therefore dissented from the views of Lord Birkenhead, Lord Finlay, and Lord Dunedin, and held that the evidence was rightly admitted and that the appeal should be dismissed. Lord Carson followed with a judgment to the same effect.

[1] The judgments of Lord Birkenhead and Lord Sumner will be found fully reported in the Times of May 31st.

[2] In 1857 the Divorce Court was instituted, and the Ecclesiastical jurisdiction in matrimonial causes superseded.

NYSTAGMUS AND SUICIDE.

A case of some importance was decided at Leigh, Lancashire, by Judge Mellor on May 30th. The widow of a miner, aged 46 years, claimed compensation from the colliery proprietors for the loss of her husband, who had worked at one of their collieries for 30 years. Deceased had been certified as suffering from nystagmus last year, and before that time was described as "a bright, cheerful man." He tried work on the surface, but had to give it up. Later he committed suicide. For the applicant, Dr. C. H. Melland, consulting physician to the Royal Infirmary, Manchester, testified that miner's nystagmus led to depression and a morbid fear of going blind, often accompanied by dismal forebodings, nightmare, and fearful dreams. A man in that state was always liable to take his life. The judge said he had had a somewhat similar case two years ago at Leigh, when he awarded compensation and his decision, which was the first of its kind, was later upheld in the Court of Appeal. He considered that deceased deliberately committed suicide and that the suicide was directly due to nystagmus. He awarded the widow £297 with costs.

CORONERS AND FIRES.

Dr. F. J. Waldo, coroner for the City of London and Borough of Southwark, in his annual report for 1923, records that in that year he held 173 inquiries into fires under the City of London Fire Inquests Act, as against 189 in 1922 and 236 in 1921, the average number of such fires in the last 22 years being 152. Dr. Waldo is a strong believer in the usefulness of the powers which he thus exercises, and recommends the holding of inquests after fires, whether there has been loss of life or not, throughout the country, instead of as now exclusively in the City. The subject has been considered, he points out, by the Royal Commission on Fire Brigades and Fire Prevention, which published its report in 1923, and recommended that inquiries into the cause of fires should be held in all appropriate cases. The Commission advised that the holding of such investigations in suspicious cases would act as a deterrent against arson, as well as being likely to elicit valuable information on

technical questions. A majority of the Commission, however, also recommended that the investigation of fires should be held not by coroners, but by persons with technical qualifications, apparently with the idea that these should be experts in construction, in building materials, and in other technical matters likely to be included for consideration in the scope of such inquiries. Dr. Waldo, very reasonably, supports the view of the chairman of the Royal Commission, in holding that the coroner, as an independent judicial officer, in many instances qualified as a lawyer, and having the experience and machinery of his office at his command, should be fully competent and better equipped than anyone else for the task. His undertaking it would also prevent the duplication of the inquiry which otherwise would take place, whenever death through a fire might render an inquest of the usual kind necessary. He suggests that the matter should be considered when the law relating to coroners is revised. Its revision, it need hardly be pointed out, has been urged, promised, and postponed so long that those interested have almost abandoned the expectation of it taking place. The Act now in force was passed in 1887.

Special Articles.

ENCEPHALITIS LETHARGICA:

SUGGESTED ACTION BY MEDICAL OFFICERS OF HEALTH.

ENCEPHALITIS lethargica was made compulsorily notifiable throughout England and Wales from Jan. 1st, 1919. In present knowledge the action which medical officers of health are able to take on receipt of notifications or on learning of suspected cases is necessarily limited, and is set forth in the concluding section of the Memorandum on Encephalitis Lethargica just issued by the Ministry of Health, which is the subject of a leading article in the present issue of THE LANCET. The Memorandum regards it as very important that action should proceed on the following lines:—

(*a*) Full determination of the associated conditions and any facts which may throw light on the epidemiology of the disease.

(*b*) Search for mild and abortive cases.

(*c*) Aiding in any practicable pathological investigation and in obtaining material for the purpose.

(*d*) Aiding in securing the treatment of the case in hospital or otherwise.

(*e*) Enjoining the precautions required in the case of a disease apparently capable of transmission from person to person, especially through mild or abortive cases capable of carrying infection; and

(*f*) "Following up" and recording the after-history of patients; in particular, as to any mental after-effects which may be observed. In this connexion inquiry should also be made into the previous history of children who began to exhibit changes in behaviour or unusual accentuation of undesirable qualities; these symptoms not infrequently point to an overlooked attack of epidemic encephalitis at an earlier date.

Specimens of cerebro-spinal fluid from cases or suspected cases of encephalitis lethargica can be sent, if desired, to the Ministry, for examination. The fluid should be withdrawn under strictly aseptic conditions, placed in a thoroughly sterilised bottle, free from disinfectants, and forwarded in accordance with the regulations of the Post Office to the Medical Officer (Med. 1), Ministry of Health, with particulars or reference to reports already sent. Medical officers of health are invited to take any action which they consider useful and practicable to secure post-mortem and pathological examinations by skilled workers who are investigating the disease.

Hospital and Nursing Facilities.—In view of the severity of the disease and the importance of good nursing, it is important to secure hospital treatment as far as possible. The isolation hospitals of local authorities should be available for this purpose. Any public nursing arrangements possessed by or arranged with the authority should be made available for cases treated at home.

Precautions against Infection.—The other occupants of a house in which a case of encephalitis has occurred, or is being treated, may be assured that the disease is one of low infectivity, and that very slight risk is run by association with the patient. At the same time it is desirable that such association should be limited to what is necessary for proper care and nursing, and the patient should be well isolated in a separate room.

School-children in the affected household may be kept from school, as a precautionary measure, for three weeks after the isolation of the patient. There is no necessity to place restriction on the movements of other occupants provided they are frequently examined and remain well. Those in contact with the case, however, may be advised to use antiseptic nasal sprays or douches and to gargle the throat with solutions such as those advised for influenza. For example, any of the following:—

(1) One per cent. solution of peroxide of hydrogen.

(2) A solution of permanganate of potash, 1 in 5000, in 0·8 per cent. solution of chloride of sodium (common salt).

(3) Liquor sodæ chlorinatæ, 0·5 per cent.

These solutions can be used as ordinary throat gargles or snuffed up the nostrils, or applied by an efficient spray. Any persons in the infected household who suffer from sore-throat or other symptoms suggesting an abortive attack should be treated from this point of view and isolated as far as possible until they have recovered. The sick-room s thoroughly cleansed and disinfected at the end of the illness.

REPORT OF THE HEALTH OF THE ROYAL AIR FORCE, 1922.*

TAKING the Force as a whole, and excluding cases of less than 48 hours' duration, sickness incidence shows an increase of 16·7 per 1000 of strength on the figures for 1921. This increase can be almost entirely attributed to the increase in the number of cases of sandfly fever which occurred overseas. This disease accounted for over one-quarter of the total cases of sickness reported from abroad, and gave a case-rate per 1000 of strength of 230·6, as compared with 122·9 in 1921. The 48-hour cases have but little effect on the total non-effective rate caused by sickness, but it is interesting to note that whereas in the United Kingdom the number of such cases practically equals those of longer duration, abroad these minor cases outnumber those of greater severity in the approximate ratio of 10 to 7. In the following remarks cases of 48 hours' duration are not taken into account.

Sickness and Death-rates.

The average duration of each case was reduced by over two days from 19·6 in 1921 to 17·4 in 1922; a corresponding proportionate decrease in the number of days' sickness per head did not, however, result, owing to the increased case-incidence rate to which reference has already been made. There was, however, a reduction of nearly one day's sickness per head. The average number sick daily was reduced by 2·1 per 1000 to 24·6. The numbers finally invalided from the service decreased from 34·3 to 15·1 per 1000 of strength. This latter figure may presumably be taken as representing a more normal figure than those in previous years, during which the effects of the war were still being reflected in the invaliding figures. It is satisfactory to note that a

* To be purchased directly from H.M. Stationery Office at the following addresses: Imperial House, Kingsway, London, W.C. 2; 28, Abingdon-street, London, S.W. 1; York-street, Manchester; 1, St. Andrew's-crescent, Cardiff; or 120, George-street, Edinburgh; or through any bookseller. 1924. 3*s*.

smaller proportion of the strength overseas was invalided home during 1922. The death-rate per 1000 for the total force fell from 4·7 to 4·3. In the United Kingdom the case-rate shows a slight decrease of approximately 2 per 1000, the Mediterranean Littoral an increase of 54 per 1000, Iraq of 190 per 1000, and India a decrease of 532·9 per 1000. As a result of this marked reduction, the sickness-rate in India was the lowest for overseas areas, whereas in 1921 it was the highest. The decrease in sickness in India is attributed to improved sanitary and hygienic conditions and to the increased experience of tropical conditions of both officers and airmen. The chief diseases peculiar to tropical climates—namely, sandfly fever, dysentery, and malaria—are dealt with in detail in the chapter relating to overseas areas. In addition, the work of the R.A.F. Sandfly Fever Commission at Malta is described in a separate chapter. This chapter describes in detail the bionomics and life-history of the *Phlebotomus papatasii*, and gives the findings of the Commission. A summary of the experiments carried out at Malta is given, and also of the various recommendations as regards fly destruction, prevention of biting, and scale of fans for living quarters. The incidence of sandfly fever was to some extent counter-balanced by a decrease in the malaria case-rate, which dropped from 122·9 in 1921 to 73·6 in 1922.

Venereal Disease.—An investigation into the value of "914" in the treatment of chronic and relapsing cases of malaria was carried out in India. The results obtained were encouraging, although no definite conclusions were reached. The primary venereal disease-rate—already low—shows a further reduction of 3·2 per 1000, dropping from 22·4 to 19·2. These figures show a satisfactory state of affairs. A further attempt has been made to estimate the value of prophylaxis, and a table is given which summarises the data collected during 1921 and 1922.

Accidents and Injuries.

Causes of injury are again dealt with in detail under 11 main headings. Flying accidents accounted for 52 cases of injury and a further 50 deaths. These numbers are higher than in previous years, but it must be borne in mind that the amount of flying carried out has greatly increased. Taking this into account, it appears that the increase in the case-rate was considerably less than the proportionate increase in the amount of flying carried out during the year. It may also be observed that the increase of 14 in the number of deaths and the consequent increase in the death-rate is to a large extent accounted for by the fact that there were eight deaths as the result of three collisions in the air. During 1921 only one death was due to an accident of this nature. Accidents occurring whilst swinging propellers fell from 28 in 1921 to 21 in 1922. Accidents caused by a back-fire whilst starting motor engines were 48 in number, compared with 71 in 1921 and 102 in 1920. The number of cases of injury resulting from such accidents has been more than halved in three years, and this satisfactory feature is attributed to a more widespread knowledge of the correct method of starting engines. In addition, there were a further 122 cases of injury caused by motor accidents; of this number 81 were due to motor cycles. Accidents occurring during athletics again account for approximately one-third of the total number of cases of injury; sprained ankle (115) and traumatic synovitis of the knee-joint (100) are responsible for one-third of the total due to athletics. The nosological tables are presented in a condensed form, and a useful addition is the insertion of corresponding ratios for 1921 in respect of the main groups of diseases. (Statistics for the entire force are not available for comparison prior to 1921.)

Standards of Acceptance and Rejection.

The constitution of the Central Medical Board has remained unchanged, although its functions were enlarged during the year. All candidates for commissions in the service now undergo a physical examination by this Board. Interesting tables are given showing the average physical measurements of candidates accepted for flying duties. The chief causes for rejection are also given. The principal points of interest appear to be: (1) The uniformity of the results obtained in the total number of examinations conducted during 1921 and 1922. (2.) The lengthening of the time of return to normal from the exercise pulse-rate. This may in part be due to the slight rise in the rate of the pulse after exercise, noticeable in 1922. (3.) The chief cause for rejection again being the defects of vision, either alone or in association with defective physical efficiency.

As in previous years all officers were medically examined towards the end of the calendar year, and tables are given showing the average responses of all tests capable of numerical expression. Interesting features in these tables are: (1) A rise of 1 per cent. in the number of officers found fit for full flying duties, the figure being 78 as compared with 77 per cent. in 1921. This rise is more marked in the general duties branch, the essential function of which is flying. The increase in this branch is 3 per cent. (2) The close approximation of the percentages fit for full flying at home and abroad.

Apart from this increased percentage of officers found fit for full flying duties, the average response to the various tests shows, on the whole, an improvement on the results obtained in previous years. This result is the more satisfactory when it is borne in mind that the results in previous years were themselves well above the accepted standards. It is also noteworthy that the results obtained by many and diverse medical officers at home and abroad during 1921 and 1922 should show: (1) Such close approximation in the two years, pointing to uniformity of technique. (2) Such slight variation from the existing standards which were evolved from successful pilots during the war.

Recruiting is dealt with in a separate section, and various tables show the average physical measurements of accepted recruits classified by age, previous occupation, and geographical areas of residence. A further table shows the chief causes for rejection at R.A.F. recruiting depôts during the year.

Hygiene and sanitation are dealt with in detail under the various geographical areas at home and abroad. It is satisfactory to note that further improvements in conditions were effected during the year under review. Vaccination and inoculation are treated in a separate section, and the results of all vaccinations carried out during the year are given in detail in tabular form.

The report under review has been prepared on similar lines to previous reports. Condensation of all tables has been still further effected, and the tables have been simplified wherever possible. It is satisfactory to note that the price has been further reduced from 5*s.* to 3*s.*

SCOTTISH REPORT ON PUERPERAL MORBIDITY AND MORTALITY.

THE report of the Scottish Departmental Committee on Puerperal Morbidity and Mortality was published last week.[1] The Committee, it may be remembered, consisted of Lord Salvesen (chairman), Mrs. Mary Barbour, Dr. R. C. Buist, Miss M. E. Cairns, Dr. T. F. Dewar, Miss A. M. Fraser, Dr. Matthew Hay, and Dr. B. P. Watson, the complete term of reference being "to inquire into the incidence of puerperal morbidity and mortality in Scotland, with special reference to the causes contributing thereto, and to suggest any remedial measures."

The Committee in 12 meetings took the evidence of 40 well-selected witnesses, while the statistical information was supplied from various authoritative sources.

[1] Edinburgh: H.M. Stationery Office. 1924. 1*s.*

Puerperal Mortality.

The Registrar-General for Scotland furnished the Committee with the statistics of puerperal mortality in Scotland arranged in groups of causes and also according to district, age-group and otherwise, and in the appendix the following table is given showing the deaths from puerperal causes in Scotland during the period from 1855–1922 in decennial means.

Deaths from Puerperal Causes in Scotland.

Years.	Total deaths from puerperal fever.	Metria or puerperal fever.	Other diseases and accidents of childbirth.	Death-rate per 1000 births.		
				Total.	Puerperal fever.	Other diseases of childbirth.
1855–1864	512	180	332	4·9	1·7	3·2
1865–1874	595	213	382	5·1	1·8	3·3
1875–1884	660	252	408	5·2	2·0	3·2
1885–1894	658	306	353	5·3	2·5	2·8
1895–1904	605	246	359	4·6	1·9	2·7
1905–1914	703	216	488	5·6	1·7	3·9
1915–1922	704	194	510	6·2	1·7	4·5

The possible sources of fallacy in this table are pointed out inasmuch as the certificates of the cause of death do not necessarily show the fact of pregnancy, while the statistician in classifying the deaths where the certificate shows more than one cause may include these cases either as puerperal deaths or deaths with other origin.

Comparison of Deaths in Different Areas.

The mean death-rates in the various local areas of Scotland, years 1911–22, show considerable variations, but while landward areas show a higher rate than burgh areas, statistical expectation has been generally accurate, and whatever may be the factors which underlie the occurrence of puerperal mortality in Scotland they are common to the varieties of social condition which characterises the population. Comparison of the mortality-rates in England and Scotland is not possible, because in England when associated conditions have been present the puerperal relation has been omitted.

Puerperal Fever.

In 1897 notification of infectious diseases in Scotland became obligatory and puerperal fever was included in the list of diseases compulsorily notifiable, and has thus been under the cognisance of the public health officers. On this important subject the Scottish Departmental Committee find as follows:—

"*Sepsis.*—From several of the larger areas we have had submitted to us careful analyses of the experience of these officers with regard to the frequency of puerperal fever, its mortality and the conditions amidst which it takes origin. From this evidence it is clear that while cases of puerperal fever are found in which no obstetrical manipulation or even assistance has been rendered, such cases are very rare, and the frequency of the fever is in close relation to the presence of delay or difficulty in the labour. The incidence is greater in first labours, in labours where some form of laceration has occurred, and in labours which have been terminated by instrumental or manual delivery."

"*Notification.*—Several witnesses have represented the view that the notification of puerperal fever is by no means complete, and that this is due to the idea that failure to prevent sepsis suggests faulty professional attendance, which makes a doctor regard unwillingly the recognition of cases as septic. We have also had evidence from Glasgow and elsewhere that the practice of notification is improving, and that as a result the apparent case mortality in the cases which come to the notice of the medical officer of health is diminishing. It is much to be desired that the notification should be as nearly as possible complete. Without this complete knowledge it is not possible to measure accurately the social importance of puerperal fever; and in many areas the notification is now the first step to hospital treatment, which is effective in proportion to the shortness of the illness that has preceded its initiation."

Professional Attendance.

The second part of the report deals with the work of the medical practitioner and the midwife in respect of the needs of the mother, and with the very important subject of antenatal care. Inquiry into the relation of environment to puerperal morbidity and mortality showed, as similar inquiries have shown, that the effect of bad housing and overcrowding are not of much weight statistically in causing puerperal troubles, while underfeeding has no effective connexion with maternal mortality; but the care needed on the part of the practitioner extends from early pregnancy till her restoration to the non-pregnant normal, and all the witnesses before the Committee have been unanimous in their evidence that the most important avenue to the prevention of maternal mortality and morbidity is through antenatal care.

Summary of Recommendations.

(1) That when death occurs during pregnancy or within four weeks after its termination the fact of pregnancy should be communicated to the registrar along with the fact of death.

(2) That representation be made to the International Committee concerned with the classification of causes of death with a view to securing uniformity of method as well as of nomenclature in compiling official statistics of puerperal deaths.

(3) That every local authority or combination of local authorities administering a scheme of maternity service and child welfare establish an antenatal clinic or antenatal clinics wherever there is a sufficient concentration of population to justify such a measure.

(4) That the antenatal departments at the maternity hospitals should be fully organised and provided with sufficient accommodation for observation, treatment, and teaching, and that such teaching be made an essential part of the practical work of both medical student and pupil midwife.

(5) That payment of maternity benefit be made conditional on the woman engaging a certified midwife or a qualified medical practitioner at least 12 weeks before the date of the normal term of delivery.

(6) That every local authority or combination of local authorities administering a scheme of maternity service and child welfare provide facilities for the testing of specimens of urine, and that where practicable this provision be made through the antenatal clinics.

(7) That local authorities should extend the assistance given to midwives by guaranteeing a minimum income to those whom they regard as satisfactory, and who depend on their earnings for a livelihood.

(8) That local authorities consider the desirability of paying a modified fee to midwives in respect of any cases lost to them by transfer to clinics and hospitals.

(9) That amendment of the Midwives (Scotland) Act be considered, with a view to removing the possibility of unqualified midwifery practice.

(10) That local authorities be empowered to furnish on loan sterile outfit and equipment at a reasonable charge, which should be remitted in necessitous cases.

(11) That the Central Midwives Board for Scotland be asked to consider the desirability of amending Rule E 21 so as to provide for the summoning of medical assistance for the repair of all tears of the perineum.

(12) That attendance of the student on antenatal cases should be organised and made compulsory.

(13) That consideration be given to the question of utilising the accommodation available in Poor-law hospitals for maternity cases.

(14) That legislation be considered to make the conduct of maternity homes illegal unless they are registered by the local authority and conducted to their satisfaction.

(15) That every death occurring within four weeks after the termination of pregnancy should be fully investigated by a person designated by the local authority, and the facts communicated to the Scottish Board of Health.

THE NUTRITIVE VALUE OF BREAD MADE FROM STANDARD FLOUR AND WHOLEMEAL FLOUR.

THE question as to the nutritive value of bread made from flours of varying degrees of refinement is one which continues to attract the attention of medical officers and the responsible authorities of educational establishments, hospitals, and institutions.

The memory of the pre-war "standard bread" campaign furiously conducted by a daily paper is not forgotten, neither are the many exaggerated claims which were made at the time for the use of "standard" flour. In 1911 Dr. J. M. Hamill, of the Local Government Board, prepared a very interesting and comprehensive report on the nutritive value of bread made from different varieties of wheat flour. He summed up the advantages and disadvantages of using "standard" or "wholemeal" flour, but made no decided pronunciamiento in either direction.

Recently the governors of a well-known boys' public school sent us samples of wholemeal and standard flours and the loaves made from them and asked us to report upon them as regards their nutritive values. On analysis the following results were obtained:—

—	Wholemeal flour.	Wholemeal bread.	Standard flour.	Standard bread.
	Per cent.	Per cent.	Per cent.	Per cent.
Moisture	15·6	36·0	15·96	34·8
Mineral matter	1·8	2·12	0·86	1·58
Phosphates (P_2O_5) in mineral matter	0·36	0·42	0·32	0·31
Fat	1·84	1·5	1·3	1·14
Proteins	10·5	7·8	9·10	7·05
Carbohydrates, starch, &c.	62·4	45·0	70·20	52·40
Matter not acted on by diastase, pepsin, and pancreatin	7·9	7·6	2·61	3·02
Energy value expressed as calories per lb.	1434	1047	1530	1155

In many analyses of this description it is customary to record the "crude fibre" figure, but in our opinion this affords little information from the nutritive standpoint, although it is of use in certain circumstances for diagnostic purposes when judging of the milling grades of different flours prepared from the same wheat. We do, however, attach considerable importance to that part of the bread which is unaffected by the enzymic activities of the digestive juices as, under normal conditions, such matter possesses no food value and would pass away in the fæces. Physiologically this residual matter, which consists mainly of the husk of the wheat corn, may be of some importance as it functions as an intestinal irritant and so counters constipation. This residual matter was determined by boiling the flour or bread with water, cooling to 55° C. and adding a sufficiency of malt amylase, the action being allowed to proceed for several hours. This treatment was followed by pepsin and finally by pancreatin, the reaction of the substrate being suitably adjusted for each enzyme. After the pancreatin digestion the residual matter was filtered, washed, dried, and weighed; a control digestion was carried out side by side using similar quantities of malt amylase, pepsin, and pancreatin, and the weight of insoluble matter found deducted from that in the flour or bread. This digestion in vitro is, of course, not identical with that which takes place in the human organism; it is, however, an approximation, and the results obtained are comparable amongst themselves.

The analyses recorded above show that from the ood value point of view (calories per lb.) the standard flour bread is superior to the wholemeal. The proteins and mineral matter (including phosphates) are a trifle higher in the wholemeal loaf. The carbohydrates (starch, &c.) are more than 7 per cent. lower and the material resistant to the action of the digestive juices some 4·6 per cent. higher than in the standard flour loaf. On the evidence afforded by analysis alone it appears that of the two loaves the one prepared from standard flour is the better.

Analytical results in the chemistry of foods are not the whole story, and consideration must be given to the physiological and æsthetic standpoints. The physiology of this subject has been closely investigated by the U.S. Department of Agriculture, who reported that according to the results of experiments on man the proportions of digestible protein and the amount of energy actually available to the body were greater in the standard patent flour (straight run) than in the entire (wholemeal) flour. The importance of the æsthetic element in the digestion of food is well known, and it appears to be admitted by physiologists that food which is pleasant in appearance and palatable is digested more readily than if it were consumed in a less interesting form. In this connexion Dr. Hamill points out that due regard should be paid to individual taste in introducing, for example, a wholemeal bread into a dietary to replace a white bread, lest otherwise attempts at improving the diet may be rendered nugatory. From the same point of view an agreeable or characteristic flavour in bread, such as the "milky" flavour imparted by the germ, may have a distinct dietetic value.

A diet consisting wholly of bread is clearly undesirable, and even if the claims made for the dietetic value of offal (germ, husk, &c.) be admitted, the presence of offal in bread would only diminish and not abolish the monotony of a bread diet. If bread is supplemented with such other foods as usually constitute an average liberal mixed diet the advantages which one variety of bread may possess over another become, for dietetic purposes, practically negligible.

An objection frequently advanced against the use of white bread is the absence from it of the water-soluble vitamin B (anti-neuritic), but this only applies to bread made from patent grade flour which is very white and almost entirely free from husk and germ. The present standard flour is by no means of this high degree of refinement, and such objection therefore does not hold.

We are not of the opinion that the loaves made from either of the flours do the baker any particular credit as their texture is rough and they are both distinctly heavy. They have somewhat of an "institutional" appearance and would not be tolerated in the ordinary private household. This is a matter which could be set right, and in baking processes there must be room for variation in sample.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Free State Local Government Bill.

A FURTHER study of the Local Government Bill, 1924, of which a brief summary was published in THE LANCET last week, strengthens the opinion that as far as the public health is concerned the principles of the Bill are sound.

Pensions for Medical Officers.—On the other hand, it has become clear that the conditions regarding pensions tend to put medical officers in a definitely worse position than heretofore. The Bill proposes to repeal Section 8 of the Local Government (Ireland) Act, 1919, which gave medical officers, under certain conditions, the right to a pension, as contrasted with the grant of a pension as an act of grace. Further, it is proposed to repeal all previous enactments dealing with pensions and superannuation. Under these enactments a medical officer was entitled, if granted a

pension, to have a number of years added to his service in computing the amount of his pension. The present Bill contains no such provision.

Control of Medical Education and Registration.—One harmless phrase in the Bill has given rise to misunderstanding and questioning. In the recital of the duties of the Minister of Local Government, in his capacity as Minister of Public Health, there is included "the training of persons for health services." It has been suggested, among others, by the medical correspondent of the *Morning Post*, that this foreshadows the intention of the Minister to control medical education and registration. The entire paragraph in which the phrase occurs, however, is taken, almost verbatim, and the particular phrase verbatim, from the Ministry of Health Act, 1919, in which similar recitals are made of the powers and duties of the Minister of Health for England, and of the Chief Secretary as Minister of Health for Ireland. The Free State Minister, in fact, is only demanding for himself the same powers and duties as belonged to his predecessor, the Chief Secretary for Ireland. The exact meaning of the words has never been made clear, but it is presumed that the reference is to the training of sanitary inspectors and other such officials.

Proposed Abolition of Rural District Councils.—The Bill has received much opposition in the second reading debate in the Dail, the opposition being chiefly directed to the proposed abolition of rural district councils. There was no hostile criticism of the sections dealing with public health, and they received the warm support of Sir James Craig and others. So strong was the criticism, however, that President Cosgrave declared that after taking the second reading he would allow the Bill to rest until he had received the report of a commission to be set up to inquire into the whole machinery of local government. This means that the Bill cannot reach any further stages for several months. One may hope that in the meantime the Minister may be persuaded to prune it of some of its weaknesses.

The General Medical Council and the Free State.

Sir Donald MacAlister's statement as to the present legal relations between the General Council and the Irish Free State has come unexpectedly to the profession in Ireland, and has given rise to a good deal of panicky talk in the newspapers. It was always understood that the Government of the Irish Free State might at any time desire to take under its control the education and discipline of the medical profession, but it was not anticipated that, without the Free State Government making any move, any technical point would arise to interfere with the present status. So far from making any move in the matter the legislature of the Free State has in its constitution continued all Acts previously in force, including the Medical Acts. It is true that if it were made impossible for medical men qualified in Ireland to obtain access to the General Register, the Irish schools would be gravely damaged.

THE GERMAN SURGICAL CONGRESS.

(FROM OUR BERLIN CORRESPONDENT.)

THE Berlin Congress recently held under the presidency of Prof. H. Braun, of Zwickau, was well attended. The first official subject of discussion was the development of

The Surgical Treatment of the Organs of the Thorax,

the introductory address being given by Prof. F. Sauerbruch, of Munich. He said that the majority of surgeons have now adopted the over-pressure procedure in operations within the thorax. Concerning the individual operations, he stated that lesions of the heart, especially from gunshot wounds show a great mortality; sutures of the heart for injuries had hitherto not been very successful. Cardiac troubles caused by compression either by growths or by infundibular thorax have been successfully operated on by removal of the growth or by resection of the ribs or the sternum. Hæmorrhage of the pericardium has been cured by puncture of the pericardium or by pericardiotomy. Great advance has been made in the surgical treatment of the œsophagus; in impermeable stricture of the œsophagus plastic operations are generally adopted; in cardiospasm Heller's operation is now the best method. In cancer of the œsophagus the operation in two stages with the placing of the stomach into the thorax has been successful. He had himself succeeded in curing two diverticulæ of the œsophagus which had perforated into the lungs. The old rule to perform at once resection of a rib in cases of empyema had been abandoned owing to experience gained in recent epidemics of influenza where numerous cases in children and in adult persons had been successfully treated by plain puncture. Cases combined with gangrene of the lungs must, however, be operated on at once by large incisions. Old empyemata must be treated by the exhausting procedure designed by Pertes before a thoracoplasty is considered. The greatest progress has been made in operations upon the lungs. Of 71 cases of bullets in the lungs operated on by the author only three have died. Freund's chondrotomy in emphysema has only a very restricted indication. In bronchiectasis resection of the respective lobe has been successful, as of 11 cases 5 were cured and 3 died. In tuberculosis of the lung resection of the first to the eleventh rib by a paravertebral incision under local anæsthesia was successful, as one-third of the patients suffering from cavities could be cured in this way, a cure meaning that the patients had during four years afterwards no sputum and had resumed work. The mortality from the operation itself is 1 per cent., but 24 per cent. by spread of the tuberculosis to the other lung or by defective expectoration. He had operated on 700 patients in this way. The operation was preferable to artificial pneumothorax. In the course of the discussion Prof. Kirschner, of Königsberg, mentioned a case where after an operation for hernia an embolus had occurred; the patient was thereupon operated on at once after Trendelenburg's method by laying open the pericardium and the pulmonary artery, from which an embolus 17 cm. long was removed. The patient recovered and was shown at the Congress. Prof. Kümmel, of Hamburg, spoke on the cure of bronchial asthma by resection of the sympathetic nerve. The operation is indicated only in cases where the cause of the disease is suggested to be a pathological condition of the nerve. The nerve, together with the ganglion stellatum and the ganglion thoracicum, must be removed first on one side and when the attacks continue on the other side too. He had cured three cases by unilateral and four cases by bilateral operation; one case was unsuccessful and one patient died.

The second official subject for discussion was the

Operative Treatment of Fracture.

The introductory address was read by Prof. König, of Würzburg. According to him, operation is indicated in fractures accompanied by lesions of the soft tissues when the ends of the broken bones lie open; in fractures within or in the neighbourhood of joints; in fractures of the patella and the humerus; in fractures of the calcaneus, the trochanter, and other points of insertion of muscles, and in fractures of the forearm with strong dislocation. The operation ought to be performed as early as the end of the first week after the accident. Narcosis can often be dispensed with. Fixation can be obtained sometimes by plain impaction of the bones; sometimes pinning becomes necessary. Sutures with wire are to be recommended. Lane's splints are useful for fixation, and after fixation suture of the muscles and of the skin must finally be performed. Movements must be made very early; in fractures of the patella as soon as a week after the operation. The functional results were encouraging, although the healing process is slower than without an open operation. Stiffness

of the joints has occurred in the speaker's cases in aged patients, but never in young ones. Prof. Steinmann, of Berne, stated that he had had bad results in operations of fractures of the femur, the mortality being 30 per cent.; he spoke in favour of extension by pins.

The third official theme concerned the

Transfusion of Blood,

the discussion being opened by Prof. Küttner, of Breslau. He discussed the different methods, direct transfusion by anastomosis of the artery of the donor with the vein of the patient, and indirect transfusion of blood with an addition of 0·2 per cent. of citrate of sodium. By the latter method blood may be preserved for four weeks, a circumstance which had proved very useful during the war. He discussed blood groups and methods of testing them. The principal indication for transfusion was acute hæmorrhage; in chronic hæmorrhage it not only restored the quantity of blood but also acted as a styptic. Good results were obtained by transfusion in cholæmia and in pernicious anæmia; in leukæmia, however, the results were doubtful, as also in septic processes and in cachexia. In poisoning with carbon monoxide and coal-gas, in pellagra, in melæna of newly-born children the results were satisfactory, but in hæmorrhage from enteric fever, in Werlhof's disease, in uræmia, and in eclampsia the results were not encouraging. In hæmophilia the anastomosis between donor and patient was the specific treatment, and cannot be supplanted by indirect transfusion of blood with a citrate of sodium solution. In relapses the proceeding might be repeated without harm. In the discussion Prof. Anschütz, of Kiel, drew attention to the favourable action of the pre-operative transfusion as a method of improving the resistance of the patients. Dr. Bätzner, of Berlin, reported experiments carried out by him by which it was shown that the cause of death from hæmorrhage was not the loss of blood itself, but an intoxication produced by an insufficient combustion of toxic products. By transfusion the product of toxic substances was diminished.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Sydenham Celebration.

IN his address on Thomas Sydenham, delivered before the French Academy of Medicine, Prof. A. Chauffard gave a scholarly account of the life and works of the great English physician, of which the following is a very brief résumé. Thomas Sydenham was born on Sept. 10th, 1624, at Wynford Eagle, and passed his youth in the troublous times of Royalist and Parliamentary dissensions. The Sydenham family were staunch supporters of Cromwell. At the age of 18 Thomas Sydenham went to Oxford University, but political discords played havoc with his studies, and though he qualified Bachelor of Medicine in 1648, as the Civil Wars followed each other he was by turns student and Roundhead captain. In 1655 he married, and the following year set up in medical practice in Westminster. In 1659 Sydenham visited the Faculty of Montpelier, where he studied under a physician highly renowned at that time, Barbeyrac, an enthusiast for the school of Hippocrates which was followed at Montpelier, while Paris adhered to Galen. In 1661 he returned to work in London, three years before the Great Plague broke out. Sydenham's action of leaving the "charnel house which London became" was the only regrettable incident of a noble life. At this time Sydenham produced the first of his works, the "Methodus Curandi Febris." "In this book," said Prof. Chauffard, "which is so personal a record, there are no quotations from authors, no burdens of erudition, nothing but clinical facts . . . this is the pure Hippocratic tradition." The fevers which Sydenham observed were probably typhoid, typhus, and malaria, rampant in the London of those days. In addition, Sydenham's description of small-pox has remained a classic.

In 1683 appeared what is perhaps his most famous work, the treatise on gout and dropsy, and three years later he described that condition since known as Sydenham's chorea. In it conciseness the description is perfect, and the work in which it was published was Sydenham's last, for he ended the book by declaring that he had told all he knew concerning the treatment of diseases. "Is it not touching," comments Prof. Chauffard, "to see this great observer himself recognising and admitting that he had reached the limits of his knowledge, and entering thus into the silence and the serenity of a man who, after long labour, considers his task as finished?" Sydenham died on Dec. 29th, 1689, worn out by the two enemies which had long harassed him—gout and gravel. His own symptoms and sufferings from renal calculus he depicted with striking exactitude.

Such was the life of Sydenham, chequered in youth by the civil discords of the times, but later a record of calm, unbroken work and devotion. He sought neither honours, nor public service, nor a professorial chair. Nor did he even hold a hospital appointment: he knew no other ambition than to examine his patients thoroughly, to tend them with his best skill, and to give the results of his observations to the medical public. Before everything, he was a great practitioner. Prof. Chauffard then discussed in greater detail the principal features of Sydenham's work, and showed how, both in methods of observation and in therapeutics, Sydenham "taught medical men to dare to think for themselves."

Prophylaxis Against Measles.

Measles is particularly serious in the case of infants, as more than three-quarters of its victims are children who have not reached their second year, especially in the poor quarters of towns where the hygienic conditions are defective. The prophylactic injection of convalescent serum has been found, if not to give complete protection against measles, at least definitely to modify the disease. Dr. Robert Debré, who is trying to bring this method into wide-spread use, recently indicated to the Academy of Medicine the lines on which a centre might be organised to collect, prepare, and control the serum of convalescents. This centre would work in conjunction with the hospital services. Dr. Debré proposed that prophylactic centres against measles should be created throughout France, with the object of collecting the serum, of controlling its effectivity, and distributing the necessary doses. He suggested that this method might equally well be adopted in a fight against whooping-cough.

NOTES FROM THE U.S.A.

(FROM A CORRESPONDENT.)

IOWA STATE MEDICAL SOCIETY: NEED FOR SOLIDARITY.

THE seventy-third annual session of the Iowa State Medical Society was held at Des Moines, Iowa, on May 7th, 8th, and 9th. Dr. Oliver Fay, in his presidential address, spoke of the necessity for solidarity in the medical profession in the face of quackery and also unfair State interference, citing in the latter connexion the success of the profession in Great Britain in the recent panel controversy.

Amongst a number of interesting papers read was one by Dr. Abt, of Chicago, on the

Diseases of Twins.

Referring to the rarity of investigation in this interesting field, Dr. Abt said that since Galton's

memorable studies no investigation had been conducted on the pathological aspect of twins. The *British Medical Journal* of 1912 contained a very interesting and suggestive editorial on twinship and fame. The editorial was suggested by the remarks of Dr. Kaiser, of Dresden, who stated that he knew of no famous man who had a twin brother. A similar query had been raised by Simpson in the *Edinburgh Medical Journal* of 1862. Simpson was not aware of a single instance in which a twin had distinguished himself intellectually. The editorial writer took issue with these two gentlemen and went on to show that there were several twin brothers who had won more or less fame. In attempting to collect information on this subject it was found that no records of morbidity or mortality in twins were available. According to Grassl, multiple pregnancies are neither atavistic nor the result of variation, but simply indicate excess of natural fertility. Newman pointed out the disadvantages of twinning by saying that when two or more fœtuses come to occupy the space usually filled by one, there is crowding and competition for common food-supply or placental site. On this account, of uniovular twins, one—the successful one—may be strong and healthy at birth, the other weak and delicate physically and defective mentally. Congenital malformations are fairly common and usually occur in both twins. Prematurity, for obvious reasons, is relatively frequent in twin pregnancies, so that rickets and kindred disorders are of high incidence. Occasionally one of the twins will succumb and the other remain free or develop the disease later. Alfred Hess states that twins—even full-time—have a special tendency to develop rickets. The mental affections of twins do not differ in form or frequency from those of other individuals, but when insanity develops in both twins the form is nearly always the same. There is often a marked difference shown in resistance to infection. Cases are reported where one of the twins showed congenital syphilis, while the other remained free. In regard to mortality, twins are said to have 13 times less chance to live than single newborn infants. After the fifth year the mortality of twins and non-twins is the same. In conclusion, Dr. Abt drew comparisons between himself and his twin brother.

Dr. Hubert A. Royster, of Rayleigh, North Carolina, gave an address on the

Philosophy of Surgery.

The speaker defined the philosophy of surgery as the fine adjustment of the higher instincts upon the *n*th power of surgical art and science. Above other men the surgeon needed the philosophical spirit. All great art represented something that it saw or believed in. How true this was of surgery! It saw what was actually accomplished—and more—what was intended; it believed in what was to be done. It was difficult to conceive of surgery without vision and faith. Not all the best of surgery was accomplished in the largest clinics or by the busiest operators. The surgeon who counts was not always the one who was doing the most work, but the one who was doing the most of the best work. In every true surgeon there was a constant effort to strike a proper balance between judgment and technique, between diagnosis and management, between pathology and performance. The sum of our philosophy, he said, was this: The surgeon would do well to bear in mind that his mission was to restore if he could, and only to destroy if he must; that his duty was to keep sweet in the midst of both success and of disaster, of praise and of censure—and the smaller his habitation, the sweeter he should keep; that moral courage was a more precious asset than physical prowess, and that it often required more bravery to desist from an operation than to proceed with it; that sordid commercialism in any degree would corrupt his professional life and poison his soul, be it the buying and selling of patients or other debasing financial practices; that it was his privilege to perfect himself in the science and art of his calling to the end that he might be of use both in knowing and in doing, not omitting to tune his conscience and his judgment to the highest pitch; that individual thinking combined with an understanding and a concurring spirit would bring the largest benefit; and that he must carry on his career in his own way, emulating, not imitating, the best he found in others who had passed along the road.

Dr. Emil Mayer, of New York City, read a paper on the study of

Affections of the Nose and Throat

with special reference to the diagnosis of affections in other parts of the body. The speaker discussed a number of conditions of the nose and throat giving rise to generalised symptoms which yield to simple treatment of the cause. Thus, in cases of persistent coughing without râles, examination of the nose and throat should always be resorted to, when an elongated uvula, foreign body in the ear, or other defect will not infrequently be found, the removal of which leads to cure of the condition. In regard to the diagnosis of generalised disease, tuberculosis often appears primarily in the nose and throat, and may sometimes be noticed here before it would otherwise be suspected. Small canary-yellow exudates appearing in the mouth, palate, tongue, cheeks, or lip are not infrequently the earliest sign of this disease. Interarytenoid thickening is another early sign. Primary syphilis may occur on the lip, tongue, or tonsil, while Koplik's spots, as is well-known, afford the earliest diagnostic sign of measles. A number of other conditions were mentioned in which the diagnosis is made from nose and throat examination.

MALVERN AS A HEALTH RESORT.

THE pleasant group of townships known as Malvern, terraced on the lower eastern slopes of the Malvern heights, was the object of a pilgrimage by representatives of the daily and weekly press of the country during the last week-end, who, as guests of the town and of the Great Western Railway Company, examined the claims of this famous Worcestershire residential district to a high place in the ranks of English health resorts.

Malvern's fame, which was as high in the latter part of the last century as it is now, when many other centres compete with it, rests on a triple basis—its situation, its climate, and its waters. The waters have been recognised for nearly 300 years as being of exceptional purity, which recent analysis, showing an almost entire freedom from organic matter, fully confirms. Their value lies in their very purity and in their non-mineral character, which renders them applicable in gout and the rheumatic diathesis. The water bubbles from springs situated above the town, and a short but healthful climb brings the patient to the Pump Rooms of St. Ann's Well, which was built over 50 years ago. It is, perhaps, in its situation and climate that the resort makes its strongest appeal to the seeker after health and quiet. The chief advantages of Malvern result from its famous position on the gentle slopes of an easily accessible range of hills which, while it extends over nine miles and reaches at the highest point to 1400 feet above sea-level, is provided with good roads and easy hill paths, offering opportunities for every degree of pedestrian activity. Thus Malvern may well be regarded as a hill station especially adapted for cardiac conditions requiring graded exercises, and for convalescence from acute conditions. The moderate elevation of Malvern suffices to raise it above many of the fogs which so often cover the plains or river valleys of England in the autumn and winter, and during the last week-end, when the flooded Severn, Avon, and Teme, following the furious rains of Saturday and Sunday, spread desolation over the plains, inundated the fields, and plunged the city of Worcester, eight miles away, into

darkness and inactivity, Malvern escaped unscathed. Indeed, the rain did not deter some of the more active of the inspecting party from climbing to the Herefordshire Beacon, round the top of which the ancient British camp extends its triple line of entrenchments, and on Monday morning, when the sun shone again, a drive over the rapidly drying roads of the Heights, through a fresh and stimulating air, offered a panorama on the one side of "county upon county of rich sylvan England, mansioned, abbeyed, towered, spired, castled," and to the westward the mountains of Wales rose in the distance.

Apart from its bracing air and large measure of sunshine, Malvern affords good hydro- and electrotherapeutic facilities. The following baths, among other kinds, may be obtained: Shower, spray, sitz, brine, soda, sulphur, pine extract, Nauheim, spinal wave and ascending douches; Russian vapour, radiant heat, electric light. Plombières lavage, massage and electrical treatment of various kinds may be had at the several special establishments. Malvern Hydropathic was the first institution for hydrotherapy to be built in England, and has kept well abreast with modern developments. The town has at present a scheme in hand for the provision of a swimming-bath and hot baths supplied with Malvern hill waters. Ample provision is made for various sports; the tennis courts at Manor Park are particularly fine, there is a good golf course, and three packs of hounds hunt in the neighbourhood.

It is such British health resorts as Malvern that offer to the visitor the charm of restful days in ideal climatic conditions that may be sought in vain among the more populous and the gayer spas, not only of the continent, but also of Britain.

SIR MALCOLM MORRIS MEMORIAL FUND.

THE hon. secretary of the committee, Dr. Howard Mummery, reports a very satisfactory response to the appeal published on May 10th in our columns for the above Fund and there is every hope that its objects will be achieved. Subscriptions have already been received from the following:—

Lady Alexander.

Dr. R. A. Bolam, O.B.E.; Botolph Printing Works; Mr. Philip Bright; British Humane Association; Dame Sidney Browne, G.B.E., R.R.C.; Miss M. M. Brumhead, Mr. R. Byers, J.P.

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The Very Rev. Dean Kirkpatrick.

The Lancet; Prof. F. S. Langmead; Mr. J. Spedan Lewis.

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Mr. C. F. Rilot, M.R.C.S., L.D.S.; Dr. Adeline Roberts.

Dr. Mary Scharlieb; Scholastic, Clerical, and Medical Association; Dr. and Mrs. Alexander Scott; the Countess of Shaftesbury; Mr. A. Allan Shand; Mr. W. H. Shrubsole; Miss F. Smith; Sir Arthur and Lady Spurgeon; Dr. Horace Sworder.

Major-General Sir Reginald A. J. Talbot, K.C.B.; Miss L. Thevenard; Sir StClair Thomson, M.D., F.R.C.S.; Miss StClair Thomson; Mrs. M. R. Torrey; Mr. E. B. Turner, F.R.C.S.

Miss Jane Walker, M.D.; Sir Arthur Whinney, K.B.E.; Sir William H. Willcox, K.C.I.E., C.B., C.M.G., M.D., F.R.C.P.; Mrs. F. B. M. Williams.

Mr. Thomas Young.

The total to date is £252 13*s*. Further subscriptions will be gratefully acknowledged if forwarded to the Hon. Treasurers, "Sir Malcolm Morris Memorial Fund," at 12, Stratford-place, London, W. 1.

Correspondence.

"Audi alteram partem."

VOLUNTARY HOSPITALS COMMISSION: EXTENDED INQUIRY.

To the Editor of THE LANCET.

SIR,—In the summer of 1922 the Voluntary Hospitals Commission decided to convene a conference of representatives of local voluntary hospitals committees, which was held in July at the Ministry of Health. The conference was very well attended, and I think representatives from practically every voluntary hospital committee in England and Wales—and many of those in Scotland—were present. The discussions which took place were of great value to the members of the Voluntary Hospitals Commission, whose main pre-occupation at that time was the distribution of the Government grant of £500,000 in aid of the deficits on the maintenance accounts of the voluntary hospitals. That task has now been accomplished. Since that date a fresh, and perhaps even more difficult, task has been placed upon the Commission by the present Government. Fresh terms of reference have been given to them which are as follows: "The Voluntary Hospitals Commission are requested to inquire into and report upon the extent of the additional voluntary hospital accommodation required in England and Wales and the best means of providing and maintaining it."

To obtain sufficient data on which to base a useful report will require considerable investigation. The Commission have already sent out a questionnaire in regard to matters on which it occurs to them that information should be afforded, but it is felt that it would be of the utmost value if a full discussion could take place with the representatives of the local voluntary hospitals committees as to the best methods by which this investigation could be carried out. A conference will be held at the Ministry of Health on June 18th at 10.30 A.M. It is earnestly hoped that all local hospital committees will be officially represented, but in addition all members of committees will be very welcome if they care to attend. I may add that although the new terms of reference and the best method of giving effect to them will be the most important subject of discussion, some of the committees have put down other matters which they desire to have considered and these will also be discussed.

I am, Sir, yours faithfully,

ONSLOW,
Chairman.

Whitehall, S.W., May 30th, 1924.

"INDUCTION" OR "CAUSE" OF CANCER.

To the Editor of THE LANCET.

SIR,—It will be well to realise that factors that induce carcinoma belong to quite a different category from those that cause it. So many writers are confusing the two processes by describing them under the one term, "cause," as if the factors of induction were the same as those of causation. They are not; for example, the slightest push may induce a ball to roll downhill. The push only induces the ball to roll. The precise nature of the various factors that cause a ball to roll downhill are subjects of acute controversy amongst the profoundest intellects of our time. When discussing carcinoma, if certainty could be arrived at as to the actual factors that induce it, no doubt a great advance would be made in our conception of the disease. If certainty could be arrived at as to the actual cause of carcinoma, the problem "What is Life?" would be solved. It will be well to recognise that the induction and cause of carcinoma are quite separate processes.

I am, Sir, yours faithfully,

G. LENTHAL CHEATLE.

Harley-street, W., May 31st, 1924.

TOXIC EFFECTS OF LOCAL ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—Dr. Dan McKenzie deserves our thanks for setting forth his method of using pure cocaine hydrochloride powder mixed with sufficient adrenalin solution to form a mud or paste for direct application to the nasal mucosa for producing local anæsthesia. Further, that thus applied he habitually uses as much as 4 to 6 g. of cocaine for each case, and never has he had one single case of cocaine poisoning. Assuming that this is the cocaine paste referred to in the report of the committee of the American Medical Association which they recommend "should never be used," Dr. McKenzie's letter is a timely and authoritative protest against such sweeping general statements.

Yet it seems curious to find that Dr. McKenzie goes on to lay down "a rule that cocaine, whether in powder or in solution, should never be employed without adrenalin." The need for caution in the exhibition of all local anæsthetics must be borne in mind, nevertheless many of Dr. McKenzie's colleagues regard it as one of the unrivalled advantages of cocaine over all other local surface anæsthetics that cocaine may be used for light anæsthesia of the nasal mucosa without the disadvantages accruing from the application of adrenalin. Probably Dr. McKenzie referred to the use of strong cocaine application for pronounced degrees of anæsthesia, but if this be so, it only emphasises the need for care in avoiding such generalisations as Dr. McKenzie himself condemns and which tend to hinder rather than help us in arriving at sound conclusions.

I am, Sir, yours faithfully,
PATRICK WATSON-WILLIAMS.

Clifton, Bristol, June 2nd, 1924.

MALARIAL TREATMENT OF GENERAL PARALYSIS.

To the Editor of THE LANCET.

SIR,—In your leading article of May 24th it was stated that " . . . we are at a loss to understand how the cerebral sclerosis and the degeneration of the nervous tissue can be permanently affected " by the malarial treatment of general paralysis. It is, however, unlikely that the lesions are affected.

In a limited experience of about 30 general paralytics treated with malaria, I have noticed that the physical signs known to depend upon a lesion of a definite locality of the nervous system, such as the Argyll Robertson pupil and the loss of ankle-jerks, remain the same after treatment as before, although the tremor, the slurring of the speech, and the abnormal mental state may have vanished and the general physical condition greatly improved. So far as I am aware, no reports have been published of the pathological condition of patients treated with malaria who have died of intercurrent disease whilst improving as regards the general paralysis, so it is impossible at present to be sure whether the structural organic lesions of the nervous system are affected. The pathological condition in a case of advanced general paralysis who had been treated with malaria and had subsequently died of the paralysis does not assist us, as the typical appearances of the untreated paralytic would presumably be found as the patient had died from this disease. As regards the macroscopical appearances, I found this to be the case in one such instance. The microscopical examination is not yet completed.

Therefore, if other observers have also found that the physical signs known to be dependent upon organic disease of the nervous system persist after the malarial treatment, it would appear that the destruction of the nervous tissue is not healed, at any rate, as regards the power of functioning. It would be interesting to know what has been found in this connexion at other institutions.

It should be added that although it is possible for a neurone to be functionally deranged without being organically destroyed, as probably occurs in the earlier stages of disseminated sclerosis, presumably this would precede the organic lesion in general paralysis. Therefore this functional derangement would be likely to occur in extremely early cases only, and then probably not as regards all the signs.

I am, Sir, yours faithfully,
G. DE M. RUDOLF.

Claybury Mental Hospital, May 28th, 1924.

GASTRIC AND DUODENAL HÆMORRHAGE.

To the Editor of THE LANCET.

SIR,—The paper by Dr. A. F. Hurst in THE LANCET of May 30th contains many useful suggestions for treatment in this serious emergency—e.g., rest, starvation, neutralisation of acid; but washing out the stomach, however skilfully performed, seems to me rather dangerous. In my judgment, however, Dr. Hurst overlooks the one essential fact—that gastric and duodenal ulcers are secondary results of trouble in the ileo-cæcal region and in the large intestine. This is a commonplace of medicine to those who are conversant with Sir Arbuthnot Lane's doctrine of stasis, but even those who have not yet wholly accepted stasis agree that gastric and duodenal ulcers are secondary to mischief lower down. I have searched Dr. Hurst's paper in vain for any sign of a recognition of this fact so essential to effective treatment.

Surely the first step, after putting the patient to bed, is the evacuation of the intestines by enemata. I venture to assert that this one step is more effective in arresting gastric or duodenal hæmorrhage than all the local measures advocated by Dr. Hurst. He draws an analogy between the stomach and the uterus. The analogy is partially true of the healthy stomach which *does* contract when empty, and does reduce its lumen to a small size, though never to zero like the uterus. My experience with bismuth and X rays in gastric ulcer shows that the stomach is invariably dilated and dropped. It does not contract when empty, and cannot until a long course of treatment (for three weeks or more) by rest in bed, enemata, &c., has overcome the duodenal distension and pyloric spasm which are keeping the lumen of the stomach widely open.

I am, Sir, yours faithfully,
ALFRED C. JORDAN.

Upper Wimpole-street, W., June 2nd, 1924.

CRIMINAL RESPONSIBILITY OF THE INSANE.

To the Editor of THE LANCET.

SIR,—Will you allow me to correct an error that has crept into your otherwise excellent summary[1] of my remarks at the Section of Psychiatry of the Royal Society of Medicine? I am reported as saying that "a great point about such impulsive states as epileptic insanity and puerperal mania was, not that the obsessions constituted irresistible impulses, but impulses resistible which had not been resisted."

I am afraid these words must have puzzled your readers. They suggest that I propounded the view that the violent impulsive actions of epileptic and puerperal insanity are controllable by penal sanctions—which is absurd. What I did say was that where, as in the case of epilepsy and puerperal mania, the degree of impulsive action is high enough to be described as "irresistible," it is difficult to say that the patient knows or appreciates the nature and quality of the act. Consequently such cases are quite capable of being brought within the law as stated in the McNaghten rules. There is nothing novel in that point. It was made 50 years ago by Fitzjames Stephen.

On the other hand, in regard to such states as are merely obsessional, I said that it was impossible on legal or logical grounds to describe the impulses to which they gave rise as "irresistible." We know

[1] THE LANCET, May 24th, p. 1057.

that such impulses are powerful, but we also know that they can be and are resisted. There is nothing new in that either. Mercier and many others have pointed it out. What I wanted to emphasise was that the doctrine of "irresistible impulse" was of no value, for it could not properly be applied to any case that is not within the four corners of the existing law.

I am, Sir, yours faithfully,

DONALD CARSWELL.

New-square, Lincoln's Inn, May 26th, 1924.

A COUNTY VENEREAL DISEASES SCHEME.

To the Editor of THE LANCET.

SIR,—Being interested in venereal diseases, and in charge of a municipal clinic, I read the article on this subject by Dr. J. J. Butterworth in your issue of May 24th. I was, however, surprised to find his laborious piece of statistical work lacking in important details, and so rendering his Tables II., III. (B) (C) misleading and in part valueless. Dr. Butterworth divides the attendances at the V.D. clinic into (1) those who complete the full course of treatment, and (2) those who ceased attending before completion of treatment. Unfortunately, he does not give the slightest indication of what "the full course of treatment" is. Does he mean one course of eight or ten injections or does he mean several? In the headings of his tables he speaks of "final tests as to cure," and "persons discharged from the clinic after completion of treatment and observation." What does this mean in dealing with syphilis and soft chancre? How long has he kept the patients under observation?

Take syphilis: When does he have complete confidence "to discharge patients from the clinic" which is tantamount to discharging them as cured? Is he satisfied with a negative blood Wassermann for 3, 6, 12 months or more? How long does he keep his soft sores under observation? Without some reasonable information on these points, some of his tables as they stand are, to my mind, quite valueless to others, and I feel it is a pity he has spoiled part of his labours by neglecting what to me are essential details in work of this kind.

I am, Sir, yours faithfully,

Glasgow, May 29th, 1924. W. HERBERT BROWN.

MEDICAL TREATMENT OF CATARACT.

To the Editor of THE LANCET.

SIR,—I have read with much interest the article by Dr. Inglis Taylor on the above subject, as I have been myself for several years in the habit of using medical treatment for incipient senile cataract. Where the patient can come to me regularly I use subconjunctival injections of cyanide of mercury, 1 in 5000, with 4 per cent. solution of sodium chloride, injected about once a week for about three months. When the patient lives at a distance I prescribe a collyrium of pot. iod. and sod. iod. each ʒiiss. to a pint of water to be used for five minutes twice a day; vasogen of iodine to be rubbed round the eyes at bed-time.

I hope to tabulate my results some day, but not having time to do so just now I will give briefly the result of my first case treated by the subconjunctival method, the result of this case being typical of many others and being apparently permanent.

Mrs. T., aged 50, consulted me on April 27th, 1918, complaining that the sight of her left eye had been failing for a year. Vision was 6/12 (2), not improved by glasses. Examination revealed an incipient cortical cataract. I gave her a subconjunctival injection once a week. By June 12th vision had improved to 6/9 (4), and by August 28th, when I ceased injecting, it was 6/6 (5), improved to 6/5 (3) by −0·50 spher. Now, after nearly six years, the vision remains the same.

With the pot. iod. treatment the results were good, but not so striking as with the subconjunctival injections.—I am, Sir, yours faithfully,

SEAGHAN P. MACENRI.

Averard, Galway, May 27th, 1924.

THE TERM "HÆMOCHROMOGEN."

To the Editor of THE LANCET.

SIR,—Some years ago in a joint paper (*Biochem. Jour.*, xiii., 1919, 195), Dr. O. Rosenheim and I entered a protest against the continued use of the term hæmochromogen as a synonym for reduced hæmatin. The former word, introduced by Hoppe-Seyler, is illogical—for the substance is not a chromogen; and unnecessary—for Stokes's original name correctly describes it. This simplification of nomenclature was originally suggested on behalf of students, but Prof. A. V. Hill's lecture (THE LANCET, May 17th, p. 994), where he confuses it with hæmatoporphyrin, is a demonstration that these long words are perplexing to teachers also. Many who read the original lecture may not see the correction in your issue of to-day.—I am, Sir, yours faithfully,

W. D. HALLIBURTON.

Marylebone-road, London, N.W., May 31st, 1924.

VACCINE FOR ENCEPHALITIS LETHARGICA.

To the Editor of THE LANCET.

SIR,—It may be still open to question whether or no encephalitis is simply "influenzal" meningitis, but one clinical fact that makes me believe this is that in the one instance in which I used an "influenza" compound vaccine, out of three cases under my direct observation since 1918, the "apparent" result was very striking, and the patient made a good recovery. The patient herself is convinced that the vaccine was the factor that turned the scale in her favour. The formula was that used in the R.A.M.C. during the 1918 "influenza" plague, and in the dearth of any other specific remedy it is surely worth while trying this vaccine in other cases.

I am, Sir, yours faithfully,

Leamington Spa, May 27th, 1924. J. PIRIE, M.D.

TARTAR EMETIC IN BILHARZIASIS.

To the Editor of THE LANCET.

SIR,—Mr. J. E. R. McDonagh alleges inaccuracy in the footnote on p. 1071 (THE LANCET, May 24th). There is none whatever. With regard to priority for first having given the injections, readers of THE LANCET interested in the matter are referred to the *Journal of Tropical Medicine and Hygiene* for June 15th, 1923. In the article entitled the Antimony Treatment of Bilharziasis will be found all I wish to write about my share in the discovery or re-discovery of the remedy.

I am, Sir, yours faithfully,

J. B. CHRISTOPHERSON.

Devonshire-place, W., May 31st, 1924.

ST. MONICA HOME OF REST, BRISTOL.

To the Editor of THE LANCET.

SIR,—I am anxious to bring to the notice of any persons who may be described as gentlefolk in poor circumstances the benefits which are intended for them by my late husband, Mr. H. H. Wills, the founder of this institution, and should be very grateful if you would enable me to do this through the medium of your columns.

The object of the St. Monica Home of Rest, Westbury-on-Trym, Bristol, is to receive as inmates gentlefolk who are members of the Church of England, suffering from certain chronic or incurable ailments, being in needy circumstances and having led honourable lives. The council of the home have also power to give financial assistance to a limited number of persons who cannot be accepted as inmates. Preference will be given, in both cases, to those having family or residential associations with the city of Bristol or the counties of Somerset, Gloucester, and Wilts. Persons mentally afflicted, epileptics, sufferers from an infectious or contagious complaint, or from

cancer or other forms of malignant disease are not eligible for admission to the home. Persons mentally afflicted, beneficiaries of other charitable institutions—so long as they are in receipt of such benefits—recipients of State aid (other than earned pensions) or of assistance from the rates are ineligible for financial assistance.

The home will probably not be ready for the reception of inmates till the end of this year at the earliest, but, in the meantime, the council are prepared to grant financial assistance to a limited number of qualified persons prior to the completion of the home. All inquiries should be addressed to Mr. W. W. Ward, Merchants' Hall, Bristol, the treasurer of the institution.

I am, Sir, yours faithfully,

MARY MONICA C. WILLS,
President of the Home.

Clifton, Bristol, May 20th, 1924.

THE PSYCHOLOGY OF VERTIGO.

To the Editor of THE LANCET.

SIR,—With reference to some recent correspondence in THE LANCET concerning psycho-analysis, I beg for space to indicate the letter on vertigo by Dr. W. H. B. Stoddart in your issue of May 24th as a striking example of the *argumentum in circulo*, lately proved in the books by Dr. A. Wohlgemuth and Dr. P. McBride to pervade the current literature of psycho-analysis from Freud's works onwards. This letter is a complete circle of dialectic beginning, continuing, and ending exclusively in unverified assumptions.

I am, Sir, yours faithfully,

London, May 28th, 1924. H. BRYAN DONKIN.

To the Editor of THE LANCET.

SIR,—My attention has been directed to a very remarkable contribution towards the much discussed questions of vertigo and sea-sickness by Dr. W. H. B. Stoddart. In my early youth a pious nurse used to tell me that evils such as these were due to the direct intervention of the Prince of Darkness. My medical studies and experience had inclined me to believe that such symptoms might be traced to organs such as the semicircular canals, the cerebellum, possibly also to the cerebrum and stomach. In the light of Dr. Stoddart's letter I am led to reflect that perhaps his psyche and unconscious may be what my old nurse used to designate more shortly "Satan." Such an explanation would at least have the merit of simplicity. Let me recommend your readers after carefully studying Dr. Stoddart's letter to draw their own conclusions.

I am, Sir, yours faithfully,

Harrogate, May 28th, 1924. P. MCBRIDE.

PUERPERAL SEPSIS.

To the Editor of THE LANCET.

SIR,—In his useful address on puerperal sepsis, published in your last issue, Mr. Beckwith Whitehouse, under the heading of General Treatment (p. 1095), states:—

"As I have noted previously, cases occur where the infecting agent is so virulent that the patient is dead almost before treatment can be instituted. I remember one such instance some years ago. I was called to see a primipara, confined 24 hours previously, who had a temperature of 104° F. She was covered with an erythematous rash and died the following morning within 48 hours of the labour. A diplococcus, apparently the pneumococcus, was present in the blood."

All sections interested in clinical and bacteriological diagnosis will agree that the finding of the pneumococcus does not establish the diagnosis of puerperal sepsis. There is strong clinical evidence that a fever in the first 24 hours after childbirth, such as Mr. Whitehouse illustrates, is more consistent with an illness of extraneous origin—e.g., scarlet fever. Until special clinical equipment in hospital has been long and widely in operation doubt must be attachable to every set of statistics and every series of statements.

I am, Sir, yours faithfully,

Liverpool, June 2nd, 1924. HENRY BRIGGS.

To the Editor of THE LANCET.

SIR,—Mr. Beckwith Whitehouse, in his recent paper on puerperal sepsis, refers to observations of mine carried out "at Queen Charlotte's Hospital." I wish to point out that this is an error; all my work on this subject has been carried out at the London Hospital. Regarding his practice of "lightly" curetting the uterus followed by frequent irrigation of the uterine cavity by the Carrel-Dakin method, I am not opposed to it if it can be carried out by an expert early and under ideal conditions. The principle of excising the infected wound area is undoubtedly correct, but I think it is impossible to do this when infection has been present in the uterine cavity more than a day or two; in such cases, therefore, I consider it safer to remove debris with ovum forceps and a swab on a sponge-holder and to sterilise the surface of the uterine cavity with 2 per cent. iodine in spirit. The application of the Carrel-Dakin method afterwards is difficult in a patient who is having rigors, and may cause a good deal of fatigue. Thus, though my methods appear to differ from his, I certainly agree with him in theory. With his experience of the success of intravenous medication I entirely agree.

I am, Sir, yours faithfully,

S. GORDON LUKER.

Park-crescent, W., June 3rd, 1924.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

ROYAL NAVAL VOLUNTEER RESERVE.

Prob. Surg. Sub-Lt. G. F. S. Parker is promoted to Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

TERRITORIAL ARMY.

Lt.-Col. A. W. Moore, from Gen. Hosp. List (Supernumerary), to be Lt.-Col., and to commd. the 48th (1st Southern) Casualty Clearing Station.

Capt. A. J. Gibson to be Maj.

Capt. E. S. Stork, having attained the age-limit, is retd., and retains the rank of Capt.

2nd Lt. B. G. Thompson, from Gen. List, T.A., to be Lt.

A. M. Cooke to be Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Capt. W. S. Forbes to resign his commn. and to retain the rank of Capt.

ROYAL AIR FORCE.

Flight Lt. S. E. Elphick resigns his permanent commission.

MENTIONED IN DESPATCHES.

The names of the undermentioned have been brought to notice for distinguished service during the operations in Waziristan, January, 1922, to April, 1923, by His Excellency General Lord Rawlinson of Trent:—

Royal Army Medical Corps: Lt.-Col. W. M. H. Spiller, Majors A. Irvine-Fortescue and C. H. Stringer, and Capt. B. C. O. Sheridan.

Indian Medical Service: Maj. D. C. V. FitzGerald, Capts. G. M. Moffat, F. R. Thornton, and C. J. Stocker; and Temp. Capt. K. G. Mohile.

MEDICAL STUDENTS AT DROITWICH.—By invitation of the Trustees of the Corbett Estate, who own the brine baths, a party of 45 medical students from Birmingham University visited Droitwich on May 31st in charge of Dr. Douglas Stanley, lecturer in therapeutics at Birmingham University. The party was conducted round the baths by Dr. J. Wilkinson and Dr. F. I. Dawson (the local representatives of the International Society of Medical Hydrology), Dr. M. Campbell, and Dr. C. F. Curtis, and the majority of them enjoyed a dip in the brine swimming-baths. Demonstration was given of the method of administering brine treatment for rheumatic and other systemic conditions.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal statistics for 1923 of eight districts varying in type, the annual health reports of which we have received :—

Name of district.	Estimated mid-year population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Dewsbury C.B.	55,424	17·0	14·0	0·8	1·3	3·7	40	83	8·5
Hartlepool B..	21,570	26·4	14·9	1·6	—	4·0	44	108	3·5
Tunbridge Wells B.	4,370	13·9	14·2	1·0	2·1	1·7	27	50	Nil.
Barnstaple R.D.	18,270	16·2	12·1	1·4	1·7	1·0	—	40	3·3
Adwick-le-Street U.D.	13,420	32·7	10·2	0·8	0·4	2·6	—	82	4·5
Bentley-with-Arksey U.D.	14,010	26·9	10·2	1·2	0·8	2·3	—	74	Nil.
Thedwastre R.D. ..	8,480	18·7	14·6	1·3	1·5	—	—	50	6·3
East Stow R.D.	6,465	21·5	9·7	0·9	1·1	—	—	29	Nil.

Dewsbury.

Dr. Oscar M. Holden reports that respiratory diseases play a very prominent part in the causes of death and blames the impurity of the atmosphere in this county borough. In the sanitary inspector's report we read that only 31 observations were made of factory chimneys, and that in 13 instances warning letters were sent where black smoke was emitted for over ten minutes in the hour. It is evident from this that the Dewsbury council only play with the problem of smoke prevention. Dr. Holden records progress in the privy-conversion scheme. During the last four years 1000 privies have been abolished without cost to the corporation. At the end of the year there still remained 1341 privies and 127 pail-closets. Attendances have increased at the maternity and child welfare centres. Dr. Holden considers dried milk far preferable as an infant's food to fluid milk as delivered in towns, and believes that its wider use plays an important part in the reduction of infantile diarrhœa. More of the dried milk was paid for and less given away than in the previous year—"an indication of better employment." Moorlands Hall has been acquired and is to be adapted as a maternity home, and Dr. Holden is hopeful that its use may exert a favourable influence on the very high maternal mortality from child-bearing. A table is given showing that this mortality was 8·9 per 1000 births during the four years 1911–14, 7·2 during 1915–18, and 7·9 during 1919–22.

Housing has continued to occupy attention, and Dr. Holden tells us that the great demand is for houses with a large living room, two large bedrooms, bath-room, and scullery to be let at 5*s.* to 6*s.* per week, and that 500 such would readily find tenants. No doubt they would, but the scheme sounds likely to be a costly one for the rates. Dr. Holden tells us that Dewsbury, according to the Census figures, shows the greatest deficiency of rooms, and the highest proportion of the population living, more than two persons to a room amongst the large towns of Yorkshire. An estimate framed on the former basis showed that 3277 houses were needed at the time of the Census, and that only 182 have been built and occupied since the Census. In this estimate no allowance has been made for "unfit" and worn-out houses and blocks of unhealthy property. About 35 per cent. of all the houses are of the back-to-back type, and there are "not a few" of the worse type—viz., back-to-earth. There is a paucity of midwives in Dewsbury, and resort is had to handy-woman help. The corporation have subsidised a former health visitor to practise midwifery in a district where the shortage is keenly felt. During the year a new voluntary nursing association has made a successful beginning.

Hartlepool.

Dr. William McKendrick tells us that a noteworthy event of the year has been the provision of facilities for bowling, tennis, &c., on the town moor, and the opening of the bathing pool, the shortage of accessible recreation grounds and the unsuitability of the shore for bathing purposes having been in the past detrimental to the health of the inhabitants. The Census returns show Hartlepool to have a practically stationary population. Thus, in 1901 it was 22,723; in 1911, 20,615, and in 1921, 20,997. In referring to the high infant mortality rate, a great part of which is due to bronchitis and broncho-pneumonia, Dr. McKendrick says one cannot avoid associating it with the prevailing poverty and vile housing conditions. The prolonged industrial depression, he says, has led to a profound mental depression amongst the poorer classes, and with this there has developed a repulsive callousness. The tuberculosis death-rate and notifications show a tendency to increase, and "this may be the first sign of the undermining effect of poverty on the health of the people." The fish refuse, which used to be sent to sea, is now sent by rail to a manure factory and has become a valuable article. The provision of a public abattoir is under consideration. The only houses built during the year were 30 required to complete the Cleveland-street area municipal scheme. All the houses in this scheme, numbering 121, are now occupied. An inquiry was held in March with regard to another scheme, which has now been sanctioned, and involves the erection of houses for 433 persons. The work of the infant welfare centre suffered during the year from the absence of a medical officer, but is now reviving. The premises are inadequate and the provision of better accommodation is under consideration. The health of the town continues to be menaced by poverty, and the continuance of the trade depression into the fourth year, says Dr. McKendrick, is bound to have dire effects on the rising generation. Vigorous and apparently successful efforts have, however, been made by both statutory and voluntary bodies to combat these effects.

Tunbridge Wells.

Dr. F. C. Linton reports with satisfaction that new premises have been obtained and are being adapted for the work of the chief maternity and child welfare centre, which has lately been carried out under great difficulties at the public health office. In October, public interest in hygiene was successfully aroused by a prize competition in mothercraft among the mothers attending the centres. At the prize-giving a popular health lecture was given by Dr. Elizabeth Sloan Chesser. The isolation hospital still lacks the extension of the administrative block, sanctioned in 1914, and another need is a motor-ambulance to replace the present ambulance for which horses are hired in the town. The school report shows that children with verminous heads do not decrease in numbers, and that eight prosecutions of parents for this offence were undertaken. Mr. Stuart Smith, the school dentist, is making good, the percentage of children treated having risen from 60 in 1922 to 72 in 1923, and this in spite of the fact that a small fee is now charged for treatment. Dr. Linton records a reduction in the number of children with defective vision, and expresses the opinion that this improvement is due to the disappearance of the effects of the defective diet and under-nourishment of the war years. Dr. Linton would like to see an open-

air school or class established for physically-defective children. Meals are not provided at the schools, but soup-kitchens are open at several centres during the winter months, which are largely used by the school-children. Instruction in swimming is provided at the open-air baths, and special terms are granted for the admission of the school-children both to the open-air and indoor swimming baths.

Barnstaple.

Dr. J. R. Harper reports a mild outbreak of epidemic jaundice among the children attending Tawstock school. Influenza became prevalent at the end of the year and spread widely over the rural district during the first quarter of 1924. One of the needs mentioned is the provision of public conveniences for day trippers near the sands of Instow, Braunton, Combe Martin, and Woolacombe.

Adwick-le-Street and Bentley-with-Arksey.

Dr. A. B. Dunne reports outbreaks of small-pox in both these urban districts. In Adwick the first case was notified on Feb. 13th, and 30 cases were notified up to Dec. 31st. There was a gap from May 7th to Sept. 22nd, after which Dr. Dunne thinks infection was reintroduced from outside. Infant vaccination had largely fallen into desuetude in the Doncaster Poor-law area, but was stimulated by the outbreak. There were 717 primary successful vaccinations in 1923 as compared with 111 in 1922. In the Bentley district 77 cases were notified. In each district all the cases were removed to hospital, and there were no deaths. In Adwick, 20 of the 30 cases occurred in unvaccinated persons; in Bentley, 62 of the 77 were unvaccinated. In each report Dr. Dunne points out the vital importance to the health and well-being of the community of a pure atmosphere and laments that nothing is being done to prevent the beauty of the countryside being ruined by the blight from the chimney stacks, and that what is bad for vegetation is also bad for human beings. In both these districts the population is growing rapidly, and Dr. Dunne considers the Registrar-General's population is an underestimate. In Adwick 401 houses were erected during the year, and in Bentley 120, of which latter number 46 were part of a municipal scheme.

Thedwastre and East Stow.

Dr. S. C. Hounsfield reports that the 18-bed isolation hospital which serves these two rural districts and Stowmarket urban district is quite out of date, that negotiations with the Ministry for the building of new wards have been completed, and that the work is to be put in hand at once. One of the most urgent needs of East Stow is the cleaning out of the river Gipping, the silted-up bed of which blocks the natural drainage of the district and creates serious flooding and sanitary difficulties. The proposal of the county council to provide work for the unemployed in cleaning out the river has unfortunately fallen through. Dr. Hounsfield says the housing problem is a pressing one in both districts. Overcrowding cannot be abated and unfit houses cannot be closed.

INFECTIOUS DISEASES IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 24TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week—namely: small-pox, 101; scarlet fever, 1493; diphtheria, 759; enteric fever, 116; pneumonia, 869; puerperal fever, 40; cerebro-spinal fever, 7; acute poliomyelitis, 7; encephalitis lethargica, 261; dysentery, 8; ophthalmia neonatorum, 167. There were no cases of cholera, plague, or typhus fever notified during the week. Of the cases of small-pox, 4 were notified from Cumberland (Workington 2, Cockermouth R.D. 2), a new locality; from the county of Derby 42 (23 of these from Chesterfield), from Northumberland 19 (all from Ashington), from Yorks, N. Riding 16 (all from Middlesbrough).

Deaths.—In the aggregate of great towns the deaths from influenza fell further from 73 to 67. There were in London 9 deaths from diphtheria, 17 only from measles. One death from small-pox was registered in Middlesbrough.

Obituary.

FORBES FRASER, C.B.E., F.R.C.S. ENG.

THE death of Mr. Forbes Fraser at Bath on May 28th, as the late result of an operating wound, removes a surgeon in the prime of life with a record distinguished alike at home and on the field of battle.

Forbes Fraser was born in 1871, the younger son of Mr. Henry Fraser, of Arbroath. At the age of 16 he entered St. Bartholomew's Hospital with an entrance scholarship, and his hospital career was a chapter of successes. He won the Harvey prize, the Brackenbury surgical scholarship, and the gold medal in physiology at the Intermediate London M.B., taking the Conjoint Diploma in 1894 and the F.R.C.S. Eng. in 1896, when he passed the examination a year before reaching the age when the diploma could be conferred. On leaving the hospital, where he became Mr. Butlin's house surgeon, Fraser engaged for three years in practice at Tarporley in Cheshire, where by dint of rising early and working late he found time to hunt and win prizes in point-to-point races. In 1900 he settled in Bath as the partner of Mr. Pagan Lowe. His long connexion with the Royal United Hospital began in 1903, when he was appointed assistant surgeon; at the time of his death he was senior surgeon. He was also consulting surgeon to the Ministry of Pensions Hospital, Bath, and to the hospitals at Chippenham, Frome, Malmesbury, and Shepton Mallet.

FORBES FRASER.

During the war Fraser joined the Duchess of Westminster's Hospital as surgeon and spent many active months at Le Touquet; it was then that beneath his guise of mildness there became revealed an inflexible doggedness in the pursuit of such things as he felt to be important. His colleagues there found him a fine and original surgeon, who might have become a dominating figure in this field had he earlier become consulting surgeon to an army. In 1917 he took up special work at No. 10 Casualty

Clearing Station, Remy Siding, the results of which were published in the *British Journal of Surgery* under the title Primary and Delayed Primary Suture of Gunshot Wounds Subsequently most of his work was at one or other C.C.S. The advent of his surgical team was always welcome where active fighting was in progress. It is related of Fraser that the strain of battle-surgery never ruffled him, and in a tired, overworked operating theatre he radiated energy, good temper, and contentment. These qualities, combined with a sound knowledge of surgery and rare judgment, led to his appointment as consulting surgeon to the Second Army, and when after the armistice this army entered Germany he became consulting surgeon to the Army of the Rhine. He retired from the Army with the rank of Colonel A.M.S. and the C.B.E.

Fraser's return to Bath found him fresh outlets for his energy. The necessity of coördinating the medical services of the civil community was borne in upon him; and being singularly receptive he aimed at linking up well-equipped cottage hospitals and hospitals in smaller towns with the Royal United Hospital, Bath. Lack of funds, unfortunately, made it impossible to embark on the complete scheme. A beginning, however, was made, and we recorded only a week or two ago the opening of the Royal United Private Hospital and of the Orthopædic Hospital at Combe Park. The first patient was admitted to the latter on the day of Fraser's death; perhaps, said one of his friends, he would have wished no more fitting commemoration.

In his own circle Fraser worked unremittingly for harmony and good fellowship. He was an active member and founder of various surgical clubs, among them the Country Surgeons Club, the Bath and Bristol Surgical Club; he had been president of the Bath Clinical Society, and was a member of the committee of the Bristol Medico-Chirurgical Society. For the last two years he had arranged courses of post-graduate instruction at the Royal United Hospital, which were well attended. His Bath colleagues recently proved their high appreciation of his worth in recommending him as president-elect for the annual meeting of the British Medical Association to be held in 1925 at Bath.

In appearance Forbes Fraser was a Nordic, tall and spare, with clear blue eyes and ruddy complexion. His manner was unassuming, so that his modesty sometimes passed for diffidence, but behind this lay great self-reliance and unswerving determination to get the best out of himself and everyone round him. The high reputation of Bath as a city of healing owes not a little to his powers of organisation and straightforward dealing. His favourite recreation was salmon-fishing, and much of his spare time was spent fishing the trout streams of Wiltshire. He was also a keen motorist. He was a man whose friendship was highly prized.

His fellow practitioners at Bath write: "He was a staunch colleague and a loyal, kindly, and generous friend. Of a highly sensitive and somewhat emotional nature, he always kept himself firmly in hand and rarely allowed his feelings to overcome his habitual suavity of manner and speech. Conspicuously honourable and straightforward in all he did, he had the most bitter contempt, which he never hesitated to express, for anything suggestive of cant, humbug, or meanness of purpose. His enthusiasm, energy, and strong sense of public duty were an inspiration to all, and the affectionate regard in which he was held by all classes of the community is no more than a fitting tribute to one whose whole life was characterised by integrity of purpose, brilliancy of achievement, and unfailing kindness in all he did."

Forbes Fraser was twice married. By the first marriage he leaves two sons and three daughters, his eldest son being a medical student at St. Bartholomew's Hospital. By the second marriage there is one daughter. His second wife survives him, and to her and all his family we extend our sympathy.

DR. BRUNO BANDELIER.

NEWS has only just reached us of the death at Schömberg, near Wildbad, of Dr. Bandelier, who was latterly medical director of the Schwarzwaldheim Sanatorium after having held the position of senior physician of Dr. Weickers's institute at Görbersdorf and director of the sanatorium at Cottbus. He was one of the principal advocates in Germany of tuberculin treatment in rapidly repeated and increasing doses, with the aim of reaching a high degree of tuberculin tolerance, and in conjunction with Dr. O. Roepke, of Stadtwald, near Cassel, brought out, many years ago, the "Handbuch der Diagnose und Therapie der Tuberkulose," which has gone through seven German editions and has been twice translated into English under the title "Tuberculin in Diagnosis and Treatment." Dr. Bandelier also collaborated with the same author in the "Klinik der Tuberkulose," which dealt with the application of treatment in all the various localisations of the tubercle bacillus. Bandelier's methods were logical and safe, and in his own practice he eliminated to a vanishing point the risks attendant on tuberculin administration. His industry was almost incredible in summarising and abstracting—which he did with conspicuous fairness—the colossal accumulation of literature on tuberculin. Few, if any, therapeutic means have ever been laid before the medical profession with the principles so carefully worked out and the pitfalls so carefully noted. Whatever place tuberculin may finally take in the practitioner's outfit, the faithful work of Bandelier will remain.

Medical News.

UNIVERSITY OF LONDON: *University College.*—A public lecture on Some Recent Experimental and Statistical Studies on the Alcohol Problem, will be delivered by Prof. Raymond Pearl, of the Dept. of Biometry and Vital Statistics, Johns Hopkins University, U.S.A., on June 24th, at 5.30 P.M. The lecture is open to the public without fee or ticket, and will be held in the theatre of the Department of Applied Statistics and Eugenics of University College, Gower-street, W.C.

At examinations held recently the following candidates were successful:—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Honours.—Kathleen D. Arnsby (*b*), London Sch. of Med. for Women; Edward Gallop (*a*, *c*), St. Bart.'s Hosp.; Dorothy Gibson (*a*, *d*, University Medal), London Hosp.; William O. C. Jarratt (*d*), St. Thomas's Hosp.; James Maxwell (*a*, *c*), St. Bart.'s Hosp.; Alfred T. Rogers (*d*), Guy's Hosp.; Wilfrid P. H. Sheldon (*a*), King's Coll. Hosp.; Hilda S. Stoessiger (*b*), London Sch. of Med. for Women; Thomas C. Summers (*d*), London Hosp.; and Harold F. Walker (*c*), Middlesex Hosp.

(*a*) Distinguished in Medicine. (*b*) Distinguished in Pathology. (*d*) Distinguished in Surgery. (*c*) Distinguished in Midwifery.

Pass.—Isaac Atkin, St. Bart.'s Hosp.; Rose Baranov, Univ. Coll. Hosp.; Lancelot G. Bourdillon, St. Thomas's Hosp.; Doris K. Brown, London Sch. of Med. for Women; James W. Brown, Middlesex Hosp.; Dorothy E. B. Buckmaster, London Hosp.; Harold Burt-White, St. Bart.'s Hosp.; Grace D. Chambers, St. Mary's Hosp.; Charles E. Cobb, St. Thomas's Hosp.; Doris B. Collier, Univ. Coll. Hosp.; Elizabeth M. Cowie and Hilda M. Cunnington, London Sch. of Med. for Women; John A. Currie, Guy's Hosp.; Donald Davidson, King's Coll. Hosp.; Mahmoud Abu Bakr Demerdash, Univ. Coll. Hosp.; Henry T. Edmunds, King's Coll. Hosp.; Barbara J. Edwards, University of Birmingham; Lucy M. Elsom, King's Coll. Hosp.; Wilfred M. Evans and Richard F. Fagan, Univ. Coll. Hosp.; Louis Forman, Guy's Hosp.; Charles A. H. Franklin and Leslie French, St. Thomas's Hosp.; George F. Gibberd, Guy's Hosp.; Laura P. Gibbon, London Hosp.; Rachel Halperin, Univ. Coll. Hosp.; James R. Hamerton, St. Bart.'s Hosp.; Greta Hartley, London Sch. of Med. for Women; Linley I. Henzell, Univ. Coll. Hosp.; Aglionby D. Hepburn, Westminster Hosp.; Gwynedd Hugh-Jones, and Kathleen M. Hyslop, London Sch. of Med. for Women; John T. Ingram, London Hosp.; Reginald Keene, St. Bart.'s Hosp.; Lorna S. King, St. Mary's Hosp.; Robert A. E. Klaber, St. Bart.'s Hosp.; Ardeshir Jahangirshah Kohiyar, Univ. Coll. Hosp. and Grant Medical College; Gladys M. Lambourne, St. Mary's Hosp.; Ronald E. Lane, and Jehiel J. Lewinstein, Guy's Hosp.; Francis Louis, Univ. Coll. Hosp.; Eveleen Lyles, London Sch. of

Med. for Women; Lucy M. T. Masterman, London Sch. of Med. for Women and St. Mary's Hosp.; George O. Mitchell, Guy's Hosp.; Clifford I. N. Morgan, St. Bart.'s Hosp.; Richard M. Morris, London Hosp.; Una F. M. Morton, Univ. Coll. Hosp.; Louis Mushin, London Hosp.; Grace H. Newell, Frances L. Nichol, and Lucy Parker, London Sch. of Med. for Women; Alan C. T. Perkins, King's Coll. Hosp.; Ethel A. Perrott, London Sch. of Med. for Women; John W. G. Phillips, London Hosp.; Jeffrey W. Poole, St. Bart.'s Hosp.; Kenneth N. Purkis, Guy's Hosp.; Margaret E. Reynolds, London Sch. of Med. for Women; Stanley H. Robinson, Guy's Hosp.; May K. Ruddy, Charing Cross Hosp.; Frank P. Schofield, St. Bart.'s Hosp.; Harold B. Shaw, Middlesex Hosp.; Patricia H. S. Shaw, St. Mary's Hosp.; Abraham I. Silverman, Middlesex Hosp.; Harvie K. Snell, King's Coll. Hosp.; Doris M. Stone and Margaret Swete, London Sch. of Med. for Women; Arthur W. Taylor, St. Bart.'s Hosp.; William Thomas, London Hosp.; John H. Thompson, Univ. Coll. Hosp.; Percy Thwaites, St. Bart.'s Hosp.; Maurice A. Townshend and Eileen M. Turner, Univ. Coll. Hosp.; Hermione M. Usborne and Dorothy M. Vaux, London Sch. of Med. for Women; James A. Walker, St. Mary's Hosp.; Robert G. R. West, St. Bart.'s Hosp.; Joan F. Whitelock, Univ. Coll. Hosp.; Emrys Williams, St. Thomas's Hosp.; John G. Wilson, Westminster Hosp.; and Esther Wingate and Isabelle J. Woodhouse, London Sch. of Med. for Women.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—H. C. Clifford-Smith, Charing Cross Hosp.; J. H. Cooper, Glasgow; W. R. A. Line, Birmingham; R. Schofield, Guy's Hosp.; and L. Statnigrosch, Middlesex Hosp.

Medicine.—E. J. Creais, St. Mary's Hosp.; W. R. A. Line, Birmingham; E. J. P. McDowell, St. Thomas's Hosp.; J. P. McGuire, St. Mary's Hosp.; and W. T. Swanton, Cork and Charing Cross Hosp.

Forensic Medicine.—F. H. Armanious, St. Thomas's Hosp.; R. Hare, St. Mary's Hosp.; W. R. A. Line, Birmingham; and E. J. P. McDowell, St. Thomas's Hosp.

Midwifery.—K. R. Chaudhri, St. Mary's Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: F. H. Armanious, J. H. Cooper, E. J. Creais, and L. Statnigrosch.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates, having passed the requisite examinations, have been admitted Diplomates in Public Health:—

Marion B. Armstrong, Dugald Baird, George Brewster, George Buchanan, Alexander A. Charteris, Alisdair C. Dewar, David R. Hamilton, Agnes M. Hill, Kenneth D. Mackintosh, Evelyn M'Pherson, Gilbert Paterson, Bessie S. Ross, Eva M. Sturrock, Joseph G. Tait, Sarah B. H. Walker, Marion Watson, Robert H. Williamson, and Jessie M. L. Wright.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—The court of governors, established under the Royal Charter incorporating the London School of Hygiene and Tropical Medicine, has now been constituted as follows: Sir Harry Goschen, Sir George Newman, and Sir W. Arthur Robinson, appointed by the Minister of Health; Prof. H. R. Kenwood, Sir William J. R. Simpson, and Mr. H. J. Waring, by the Senate of the University of London; Sir Arthur Clarke and Sir Ion Hamilton Benn, by the Seamen's Hospital Society; Sir Gilbert Barling, Sir E. Coey Bigger, Dr. W. L. H. Duckworth, Prof. J. B. Leathes, Dr. John C. McVail, and Sir Humphry Rolleston, by the General Medical Council; Sir Malcolm Delevingne, by the Home Secretary; Sir Herbert Read, by the Colonial Secretary; Colonel H. P. W. Barrow, by the Secretary of State for War; Major-General Sir Richard Havelock Charles, by the Secretary of State for India; Air Commodore D. Munro, by the Secretary of State for Air; Surgeon Vice-Admiral Joseph Chambers, by the Board of Admiralty; Mr. W. R. Buchanan Riddell, by the President of the Board of Education; Sir A. Daniel Hall, F.R.S., by the Minister of Agriculture and Fisheries; Sir W. Leslie Mackenzie, by the Secretary for Scotland; Sir Frederick Andrews, F.R.S., by the Medical Research Council; Sir Walter Fletcher, F.R.S., by the Royal Society; Sir George S. Buchanan, by the Health Committee of the League of Nations; Mr. W. Ray, by the London County Council; Mr. Walter Eickhoff, by the Metropolitan Asylums Board; Sir William Hodgson, by the County Councils Association; Alderman Francis Askew, by the Municipal Corporations Association; Sir David Bruce, F.R.S., by the Lister Institute; Sir Henry Tanner, by the Royal Sanitary Institute; Sir William R. Smith, by the Royal Institute of Public Health; and Dr. R. A. Bolam, by the British Medical Association. The first meeting of the court was held at the Ministry of Health on May 29th, when 32 members were present. Mr. H. J. Waring was elected chairman of the court. The board of management has now been completed and is constituted as follows: Sir Alfred Mond, Sir George Newman, Sir Walter Fletcher, F.R.S., Sir E. Cooper Perry, Mr. H. J. Waring, Sir Arthur Clarke, Sir Humphry Rolleston, Colonel H. P. Barrow, and Dr. John Robertson.

ROYAL SOCIETY OF MEDICINE.—A conversazione will be held in the Society's house, 1, Wimpole-street, W.1, on June 24th, at 9 P.M., when the President, Sir William Hale-White, will give a short address on the Story of "Say Ninety-Nine."

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—A post-graduate course of instruction for medical women in treatment of venereal diseases has been arranged jointly by this school, the Royal Free Hospital, the London Lock Hospital, and the Elizabeth Garrett Anderson Hospital. The course will begin on June 16th at 10 A.M., and will continue for two weeks. The number of persons admitted to the course will be limited to 12, and applications will be dealt with in the order received. The course is designed to be strictly practical in character, and a certificate will be issued to practitioners attending the full course to the satisfaction of their teachers. Those taking part include Mr. Johnston Abraham, Dr. Margaret Rorke, Lady Barrett, Colonel L. W. Harrison, Mr. Charles Gibbs, Dr. Ruth Balmer, Mr. J. E. R. McDonagh, Mr. Laurence Abel, Major W. Victor Corbett, and Mr. Lindsay Rea. Application should be made to the Warden and Secretary at the School, 8, Hunter-street, W.C.

CONFERENCE OF THE INTERNATIONAL UNION AGAINST TUBERCULOSIS.—The fourth conference will be held at Lausanne, Switzerland, on August 5th, 6th, and 7th, and a provisional programme has now been issued. The subject for the first discussion, to be held at 2 P.M. on August 5th, will be opened by Prof. A. Calmette, and will deal with the following problem: Do there exist in nature or can there be artificially produced saprophytic varieties of Koch's bacillus which possess the property of becoming virulent tubercle bacilli? At 5 P.M. Prof. H. Sahli will lecture on the Defence of the Organism against the Tubercle Bacillus. On August 6th, at 10.30 A.M., a discussion on the Relationship Between Pregnancy and Tuberculosis will be opened by Prof. J. H. Forssner; and at 5 P.M. Prof. Léon Bernard will lecture on Prophylaxis in Childhood against Tuberculosis. On August 7th, at 9.30 A.M., a discussion on the Effects of the Anti-Tuberculosis Campaign on the Diminution of the Mortality from Tuberculosis in Different Countries will be opened by Sir Robert Philip. A visit to the principal anti-tuberculosis centres in Switzerland will be arranged, to start on August 8th. The itinerary will include: Leysin, Montana, Heiligenschwendi, Berne, Zurich, Davos, and Arosa. The tour will take about eight days. Application for admission as an ordinary member of the union (annual subscription £1) should be made not later than June 16th to Miss Freda Stickland, secretary, National Association for the Prevention of Tuberculosis, 20, Hanover-square, London, W.1, from whom further particulars can be obtained.

LIVINGSTONE COLLEGE.—Commemoration day at Livingstone College was held on May 31st, when a large number were present. The chair was taken by Sir William J. R. Simpson. The Principal of the College said that 36 students had entered the College during the present session. He spoke of the encouraging reports received from former students of the value of the training received at the College, and emphasised the need for an increase of students and subscriptions to carry on the work more usefully in the future. A cheque, amounting to £52 17*s.* 9*d.*, was handed to the treasurer, Mr. R. L. Barclay, by the senior student, on behalf of the past and present students, to help meet the cash deficit, as a token of gratitude, esteem, and good will. The treasurer said that the financial side of the work of Livingstone College for the last few years had been one of considerable anxiety. He referred to the fact that the College had to depend on the fees of students and the subscriptions of a few friends for its upkeep. It was necessary to increase the number of students, and until that is an accomplished fact further subscriptions are called for. About £500 are needed to balance the cash account before Sept. 30th. The chairman said that the course at Livingstone College is an excellent one, and one that will be most useful to the missionary in order to teach him how to care for his own health, and to get into the hearts of the people amongst whom he works. The students of this College were taught the methods of prevention of malaria, dysentery, and cholera, and in this way are most helpful to the sanitary authorities.

Messrs. William Heinemann (Medical Books), Ltd., announce the forthcoming appearance of a book on Encephalitis Lethargica by Prof. Aug. Wimmer, containing a preface by Sir Frederick Mott.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The annual dinner of this society will take place at the Trocadero Restaurant, Piccadilly, London, W., on June 13th. Sir W. H. Willcox, the President, will take the chair.

The Cavendish Lecture will this year be delivered by Sir Robert Jones on Some Points in Manipulative Surgery, at the Kensington Town Hall, London, W., at 8.15 P.M., on June 20th. A conversazione will follow, at which many firms will provide medical and surgical exhibits.

GLASGOW UNIVERSITY CLUB, LONDON.—The annual summer dinner will be held at the Trocadero Restaurant, Piccadilly, on Friday, June 27th, at 7.30 P.M., Lieut.-Colonel John Buchan in the chair. Any Glasgow University men, not members of the Club, who desire to attend the dinner are requested to communicate with the hon. secretaries, 1, Harley-place, N.W. 1.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The prize founded by Dr. J. T. Neech for the best paper read in each session before a branch or group of the Society of Medical Officers of Health has been awarded to Dr. C. O. Stallybrass for his paper entitled Encephalitis Lethargica; Some Observations on the Recent Outbreak, read before the North-Western branch in May, 1922. The assessors for the prize were the President (Dr. T. W. Naylor Barlow), Prof. H. R. Kenwood, Dr. W. J. Howarth, and Dr. R. A. Lyster.

WESTMINSTER CIVIC DINNER.—On Monday, June 2nd the Public Libraries, Public Baths and Watch Committees of the City of Westminster were entertained at a dinner held in the Savoy Hotel, at which the Mayor of Westminster, Councillor Edgar Horne, J.P., occupied the chair. The toast of "The Libraries, the Baths, and Watch Committees" was proposed by the chairman, who referred to the excellent and enterprising work which had been carried out by these three sections. The toast was responded to by Councillors the Rev. Jocelyn Perkins, Major W. C. Hussey, and George H. Heilbuth, respectively, for each committee. "The Visitors" were toasted by Alderman Sir Robert Walden, and there replied Mr. H. A. L. Fisher and Mr. A. R. Dyer, chief officer of the London Fire Brigade. Sir Edward Thesiger gave the "City of Westminster" and the Mayor replied. A pleasant musical programme was contributed by the Westminster Singers. Among others present were: Brigadier-General R. H. More, Sir Robert Sanders, Colonel Arthur Brodrick, Sir John Horsburgh-Porter, Mr. F. L. D. Elliot (Assistant Commissioner of Police), Mr. C. K. Francis, The Very Rev. Father Russell, Sir Henry New, Mr. Sidney C. Harper (the Mayor of Islington), and Lieut.-Colonel H. M. Pryce-Jones.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Commencing on Monday, June 16th, the Royal Northern Hospital will give, in conjunction with the Royal Chest Hospital, a two weeks' intensive course, including all the general and special departments of medicine and surgery. The Wednesday sessions will be undertaken by the Royal Chest Hospital, but apart from these the work will be carried out at the Royal Northern Hospital, and includes demonstrations of clinical methods and cases in the mornings and afternoons, followed by a formal lecture, open to members of the profession, at 4.30 P.M. At St. Peter's Hospital there will be a four weeks' special course in urology from June 16th to July 12th, which will consist of clinical work daily, in addition to formal lectures on the various aspects of urinary diseases. Beginning also on June 16th the Children's Clinic (Western General Dispensary) has arranged a series of nine lecture-demonstrations on children's diseases. The last demonstration and lecture will take place on Friday, July 4th, and will be given by Dr. Bernard Myers at the Royal Waterloo Hospital. Courses already in progress are Gynæcology at the Chelsea Hospital for Women, Diseases of Tropical Countries at the London School of Tropical Medicine, both of which will conclude on the 27th of the month. The following courses have been arranged for July and August: Cardiology, at the National Hospital for Diseases of the Heart; General Intensive Course, at the North-East London Post-Graduate College (Prince of Wales's General Hospital); Diseases of the Chest, at the Brompton Hospital; and Neurology, at the West-End Hospital for Nervous Diseases. Copies of the syllabus and full particulars of any of the above courses can be obtained from the secretary to the Fellowship of Medicine, at 1, Wimpole-street, London, W. 1.

Parliamentary Intelligence.

HOUSE OF LORDS.

WEDNESDAY, MAY 28TH.

Therapeutic Substances Bill.

THE Therapeutic Substances Bill was read a third time.

THURSDAY, MAY 29TH.

Cost of Medical Benefit.

The National Health Insurance (Cost of Medical Benefit) Bill received the Royal Assent by Commission.

HOUSE OF COMMONS.

TUESDAY, MAY 27TH.

International Restrictions on Use of Lead Paint.

Mr. D. G. SOMERVILLE asked the Home Secretary the numbers and names of those Powers signatory to the International Labour Organisation Convention of Nov. 19th, 1921, who had either ratified the proposed restrictions on the use of lead paint or had laid legislation to that end before their respective legislatures; and whether he would give the names and numbers of those Powers concerned who had taken no such action.—Mr. HENDERSON replied: I have consulted with my right hon. friend, the Minister of Labour, on this matter. Our information is that three Powers—namely, Czecho-Slovakia, Esthonia, and Sweden—have formally ratified the Convention, though I understand that in the case of Czecho-Slovakia legislation to give effect to the provisions of the Convention has not yet been passed. Ratification has been authorised, though not formally registered, in the case of four other Powers—Austria, Greece, Italy, and Poland. In the case of seven countries—Bulgaria, Chili, Cuba, Germany, Latvia, Netherlands, and Spain—legislative proposals to give effect to the draft Convention have been laid before the respective legislatures. Draft Conventions adopted by the International Labour Conference are not signed. Of the 54 members of the International Labour Organisation at the time of the third session of the Conference in 1921, 39 were represented at the Conference; in the case of Albania, Bolivia, Canada, China, Finland, Guatemala, India, Japan, Roumania, Siam, and Venezuela the Government representatives did not vote for the draft Convention. So far as I am aware, the remaining countries represented at the Conference—namely, South Africa, Australia, Belgium, Brazil, Columbia, Denmark, France, Luxembourg, Norway, Portugal, Kingdom of the Serbs, Croats and Slovenes, Switzerland, and Uruguay—have, as yet, not brought before their respective legislatures legislation designed to give effect to the draft Convention. I would add that in France the use of white lead in painting operations carried out by operative painters, whether on the exterior or interior of buildings, is prohibited by a decree dated July 20th, 1909.

Encephalitis Lethargica.

Sir PHILIP DAWSON asked the Minister of Health the number of cases of encephalitis lethargica reported during the 12 months ended May 30th, 1924; the number reported during the corresponding period of the preceding year; and the total number of deaths in the periods mentioned.—Mr. WHEATLEY replied: The figures for the actual periods mentioned in the question are not available, but the following table gives the particulars required for each quarter in 1922 and 1923, and for the first 20 weeks of the present year:—

Notifications.		*Deaths.*	
13 weeks ended—	England and Wales.	Quarter ended—	England and Wales.
Apl. 1st, 1922 ..	140	Mar. 31st, 1922 ..	95
July 1st, ,, ..	132	June 30th, ,, ..	96
Sept. 30th, ,, ..	89	Sept. 30th, ,, ..	82
Dec. 30th, ,, ..	93	Dec. 31st, ,, ..	66
Mar. 31st, 1923 ..	448	Mar. 31st, 1923 ..	188
June 30th, ,, ..	279	June 30th, ,, ..	167
Sept. 29th, ,, ..	144	Sept. 30th, ,, ..	90
Dec. 29th, ,, ..	154	Dec. 31st, ,, ..	86
Mar. 29th, 1924 ..	753	Mar. 31st, 1924 ..	229‡
May 17th,* ,, ..	1715†	May 17th,* ,, ..	‡

* Seven weeks ended. † Uncorrected. ‡ Approximate.

The notifications in England and Wales during the 52 weeks ended June 2nd, 1923, were 868, and during the 50 weeks ended May 17th, 1924, were 2829. (Uncorrected figures for last seven weeks as above.)

WEDNESDAY, MAY 28TH.

Maternity Convention.

Mr. WHITELEY asked the Minister of Labour whether it was the intention of the Government to bring the Maternity Convention decisions before the House for ratification during the present session; and, if not, whether he could

give any assurance that they would be dealt with during the autumn session.—Mr. T. SHAW replied: I am still in consultation with my right hon. friend, the Minister of Health, regarding the policy to be adopted by His Majesty's Government in connexion with this draft Convention. I cannot at present make any further statement.

Royal Commission on Lunacy Laws.

Major MOULTON asked the Minister of Health whether he was now prepared to form the proposed committee to inquire into the lunacy laws; and whether, pending its report, he would take steps to provide for more frequent inquiries into the mental state of patients detained in asylums by persons extraneous to such asylums.—Mr. WHEATLEY replied: I hope that a Royal Commission will be appointed within the next few weeks. Pending their report, I will continue to keep a careful watch on the administration of the Lunacy Acts.

Public Health Services Inquiry.

Mr. MONTAGUE asked the Minister of Health whether he was prepared to appoint a court of inquiry to investigate and report upon the prevailing conditions of the public health service of the country.—Mr. WHEATLEY replied: I do not, as at present advised, see any necessity for such a general inquiry as is suggested, since there is clearly room for further expansion and improvement of the services on what is already known about them.

Compulsory Segregation of Tuberculosis Cases.

Mr. BLACK asked the Minister of Health whether he would state the policy of the Government with respect to the compulsory segregation of persons seriously affected with tuberculosis and in an infectious and incurable condition; and whether he could promise adequate protection to the children and near relatives of such persons who were, through lack of housing accommodation, forced to live in close proximity to such diseased persons.—Mr. WHEATLEY replied: As regards the first part of the question, this matter will be considered in connexion with any proposals for the amendment of the Public Health Acts. As regards the second part, it is for the local sanitary authorities to take all such steps as are practicable to prevent the spread of infection.

Cost of a Poor-law Institute.

Mr. LINFIELD asked the Minister of Health the average cost, including food, clothing, medicine, attendance, doctors' fees, and all overhead charges, of a Poor-law institute.—Mr. WHEATLEY replied: In the financial year 1922–23 the average weekly cost per inmate of all the Poor-law institutions in England and Wales was about 26*s.* 6*d.* This amount includes food, clothing, medicine, fuel, and lighting; salaries and other remuneration of doctors, masters, matrons, nurses, attendants, and other persons; the cost of the upkeep of buildings and furniture; rent, rates, taxes and insurance, interest on loans for capital works and provision for repayment of such loans.

Smoke Abatement.

Mr. LORIMER asked the Minister of Health if he was aware that public opinion was ready and eager to strengthen the Public Health Act of 1875 regarding smoke abatement; that many of the largest towns in the country had given up attempts to prevent atmospheric pollution under the Public Health Act, and had applied to Parliament for special powers; and was he ready to grant the special powers asked for.—Mr. WHEATLEY replied: The Government hope to introduce a Bill dealing with this subject at an early date.

National Health Insurance.

Mr. WILLIAM M. ADAMSON asked the Minister of Health whether the National Health Insurance (Prolongation of Insurance) Act was to be renewed for the year 1925.—Mr. WHEATLEY replied: The question of the extension until Dec. 31st, 1925, of the National Health Insurance (Prolongation of Insurance) Act is receiving consideration; but I am not yet in a position to make a definite announcement on the subject.

THURSDAY, MAY 29TH.

Revision of Pension Awards.

In reply to Mr. LANSBURY, Mr. F. O. ROBERTS, Minister of Pensions, said: I am aware that among the cases of disabled ex-Service men and dependents of men who lost their lives in the late war, there are some which on merits call for reconsideration. I am glad to be able to inform my hon. friend that, by an extension of arrangements initiated by my predecessors, I have now been enabled to secure that all cases in which additional evidence is furnished shall be fully considered and a suitable grant made, with the assistance of the Treasury, if the disability or death is now found, in the light of all the evidence available, to be due to service in the late war. The necessary arrangements are being made to enable such cases, if they are referred to local or regional offices, to be dealt with.

Meals for Necessitous School-children.

Mr. NIXON asked the President of the Board of Education how many necessitous children received meals in elementary schools; how many meals were served in 1923; and what was the cost per meal.—Mr. C. TREVELYAN replied: The latest period for which I have complete figures is the year ending March 31st, 1923. During that year 149,676 children received school meals under the provisions of the Education Act, 1921; of these, 127,636 received free meals. The total number of meals provided was 17,171,298, of which 14,991,798 were provided free. The average total cost per meal was 3·6*d.* During the calendar year 1923, 11,463,487 meals were provided, of which 9,357,557 were provided free.

MONDAY, JUNE 2ND.

Army Hospitals in India.

Mr. BROAD asked the Under Secretary of State for India: (1) How far effect had been given to the recommendations of Lord Inchcape's Committee on Retrenchment to reduce the number of Army hospitals and the number of beds in those which were retained; and whether any and, if so, what reduction had been made in the hospital staffs as recommended by that committee; and (2) whether, seeing that the Inchcape Retrenchment Committee reported that British hospitals in India were not used to a quarter of their capacity and Indian hospitals only to a third of their capacity, and that they made recommendations for the reduction of the number of hospitals, beds, and staffs, whether any action was taken on these recommendations; and what was the financial saving in consequence.—Mr. RICHARDS replied: The following action has been taken on proposals of the Indian Retrenchment Committee regarding medical services and hospitals. The number of beds in the British and Indian station hospitals has been reduced by the amounts shown below:—

	British station hospitals.	Indian station hospitals.
Northern command ..	1016	1180
Southern ,, ..	466	582
Eastern ,, ..	331	184
Western ,, ..	83	95
Burma district	61	—

A reduction of 15 officers of the Indian Medical Service has been carried out and the services of 60 assistant surgeons are being dispensed with. A saving of Rs.5 lakhs was anticipated from these reductions, but the actual net saving is not yet known.

Civil Surgeons in United Provinces.

Mr. HOPE SIMPSON asked the Under Secretary of State for India how many civil surgeons are employed in the United Provinces, and of these how many were commissioned European officers.—Mr. RICHARDS replied: There are 50 civil surgeons in the United Provinces. On Jan. 1st last these included 15 European officers of the Indian Medical Service and 10 officers of the Indian Medical Department.

Royal Commission on Lunacy Laws.

Mr. COSTELLO asked the Prime Minister whether, in view of the fact that the provisions of the Scotch Lunacy Acts differed in many particulars from those of the English Lunacy Acts, it was intended to include in the terms of reference to the Royal Commission on Lunacy about to be appointed the question of Scotch administration in addition to English administration of these Acts; and, since the administration of a Government department might be called in question in the course of the inquiry, would he consider the question whether it was undesirable to appoint to the Commission any person holding office under the Government.—Mr. MACDONALD replied: It is not intended to include in the terms of reference of the proposed Royal Commission the question of lunacy law and administration in Scotland. With regard to the second part of the question, I do not think it undesirable to appoint a member of the Government to be a member of the Commission if his personal qualifications are such that the appointment would strengthen the Commission.

TUESDAY, JUNE 3RD.

Vivisection of Dogs.

Lieut.-Commander KENWORTHY presented a Bill to prohibit the vivisection of dogs. The Bill was read a first time.

Cruelty to Children.

Dr. SPERO asked leave to introduce a Bill to amend the Children Act 1908 in respect of punishments for second or subsequent convictions by abolishing the option of a fine. The Bill, he said, would greatly reduce the number of cruelty cases in regard to children.

Mr. FOOT opposed the Bill on the ground that it was ill-conceived and would not achieve its purpose.

A division was challenged, but as only three members rose in support of this demand, the Speaker declared that leave to introduce the Bill was refused.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Friday, June 13th.

OPHTHALMOLOGY: at 8.30 P.M. (CASES at 8 P.M.)

Annual General Meeting:
Election of Officers and Council for 1924-25.

Cases will be shown.

Exhibit:
Mr. Frank Juler: A Modification of Elliott's Scotometer.

Paper:
Dr. George Riddoch and Mr. Charles Goulden: The Relationship between Subarachnoid and Intra-ocular Hæmorrhage.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, Leicester-square, W.

WEDNESDAY, June 11th.—4.30 P.M., Prof. M. Oppenheim: Annual Oration. Affections of the Skin caused by Occupation and Profession.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, June 9th, to SATURDAY, June 14th.—CHELSEA HOSPITAL. Daily Operations, &c. Tues., 5 P.M., Mr. Victor Bonney: Carcinoma of the Cervix. Thurs., 9.30 A.M., Gonorrhœa in Women. Fri., 2 P.M., Mr. Comyns Berkeley: Ovarian Cysts. Sat., 11 A.M., Mr. Aubrey Goodwin: Path. Dem.—LONDON SCHOOL OF TROPICAL MEDICINE. Tuesdays and Thursdays at 2 P.M., Demonstrations on Diseases of Tropical Countries. MAUDSLEY HOSPITAL. Wed., 2.30 P.M., Dr. Mapother: States of Mania and Depression.—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN. Clinical Demonstrations, Daily (except Saturdays) at 2 and 6 P.M. Thurs., 5 P.M., Dr. Haldin Davis: Acne.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

TUESDAY, June 10th.—10 A.M., Mr. Steadman: Dental Dept. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.

WEDNESDAY.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Dr. Scott Pinchin: Diseases of the Heart. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Mr. Sinclair: Surgical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE.

TUESDAY, June 10th.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Risien Russell. Lecture: The Localisation of Intracranial Tumours.

THURSDAY, June 12th.—12 noon, Dr. Riddoch. Lecture: Anatomy and Physiology of the Nervous System. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Russell J. Reynolds. Lecture: Radiology in Nervous Diseases.

FRIDAY, June 13th.—2 P.M., Dr. Gordon Holmes: Out-patient Clinic. 3.30 P.M., Mr. Sargent. Lecture: Tumours of the Ponto-Cerebellar Angle.

Applications should be addressed to the Secretary, Medical School, National Hospital for the Paralysed and Epileptic, Queen-square, London, W.C. 1.

J. G. GREENFIELD, Dean.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN.

THURSDAY, June 12th.—5 P.M., Dr. M. G. Hannay: Lichenification.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, June 12th.—4 P.M., Dr. Frew: Infant Feeding.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

THURSDAY, June 12th.—5 P.M., Mr. Richard Lake: Middle-Ear Disease. (Geoffrey E. Duveen Lectures in Otology.)

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

MONDAY, June 9th.—(At the Children's Hospital.) Dr. Fordyce: Medical Cases.

TUESDAY.—(At the Southern Hospital.) Mr. Armour: Injuries of the Forearm, Wrist, and Hand.

WEDNESDAY.—(At the Northern Hospital.) Dr. Pemberton: Jaundice.

THURSDAY.—(At the Stanley Hospital.) Dr. Wadsworth: Acidosis.

FRIDAY.—(At the Royal Infirmary.) Dr. John Hay: Electrocardiograph Demonstration.

Appointments.

CRITCHLEY, ELIZABETH E., M.B., Ch.B. Edin., has been appointed Resident Medical Officer, Fulwood Institution, Preston.

LITT, JOHN PERCY, M.D. Edin., Medical Officer of Health and School Medical Officer for the Borough of Lytham, St. Annes.

LODGE, W. OLIVER, M.D. Leeds, F.R.C.S. Edin., Consulting Ophthalmologist to the Bradford Corporation.

MAGUIRE, C. C. W., M.R.C.S., L.R.C.P. Lond., Medical Registrar, Queen's Hospital, Birmingham.

RODGERS, J. H., L.R.C.P., L.R.C.S. Edin., Medical Officer, Weymouth District Board of Guardians.

Willesden Urban District Council: CHAMPNEYS, W. D., M.A., M.B., Ch.B., D.P.H., Assistant M.O.; and GRAY, ALICE J., M.A., M.B., Ch.B., D.P.H., Resident M.O.

Medical Referees under the Workmen's Compensation Act: ODELL, R., M.D. Durh. (St. Albans, Barnet, Hertford, and Watford); MAY, Sir GOULD, M.D. Camb. (West London); and MACFADDEN, C. J. R., M.D. Edin. (Marylebone). CRIPPS, F. R., M.B., Ch.B. Edin., Certifying Surgeon under the Factory and Workshop Acts (Patrington, York).

Vacancies.

For further information refer to the advertisement columns.

Alton, Hampshire, Lord Mayor Treloar Cripples' Hospital and College.—Jun. Asst. R.M.O. £250.

Ashton-under-Lyne District Infirmary.—H.S. £150.

Bahamas.—Bacteriologist and Asst. M.O.H. £600.

Barbados General Hospital.—Res. S. £330.

Barnsley, Beckett Hospital and Dispensary.—Jun. H.S. £160.

Bournemouth, Royal Victoria and West Hants Hospital.—Res. H.S. £150.

Breconshire, South Wales Sanatorium, near Talgarth.—Jun. Asst. R.M.O. £200.

Brighton, Hove Hospital, Sackville-road.—R.M.O. £175.

Bristol General Hospital.—Hon. Clin. Assts.

Bristol Royal Infirmary.—Hon. P. and Hon. Asst. P.

Canterbury, Kent and Canterbury Hospital.—Res. M.O. £175.

Cardiff, Welsh National School of Medicine.—Lecturer in Special Sense Physiology. £750.

City of London Maternity Hospital, City-road, E.C.—R.M.O. £100.

Derbyshire County Council.—Locum Tenens Tuberculosis Officer. £700.

Doncaster Royal Infirmary.—Jun. H.S. £150.

Dreadnought Hospital, Greenwich S.E.—H.S., and H.P. Each £150.

Dundee, King's Cross Infectious Diseases Hospital.—Sen. R.M.O. £350.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., H.S., Cas. M.O., and Cas. Surg O. Each £100.

Harrogate Infirmary.—H.S. £150.

Hong-Kong Government.—Two M.O.'s. Also Asst. Port Health O. Each £600.

Huddersfield, Storthes Hall Asylum, Kirkburton.—Asst. M.O. £400.

Lambeth Parish Hospital.—Jun. Asst. M.O. £200.

Leeds University, Dept. of Pathology and Bacteriology.—Lecturer in Chemical Pathology. £600.

London Hospital, E.—First Asst. to each of the four Medical Firms. £400.

London Hospital Medical College.—University Chair of Medicine. £2000.

London Lock Hospital, 91, Dean-street, S.W.—Clin. Assts.

London Temperance Hospital, Hampstead-road, N.W.—R.M.O. £200.

Manchester Royal Eye Hospital.—Hon. Surg., Hon. Aural Surg., and Hon. Dental Surg.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Asst. Path. £250. Also R.M.O. £200.

Newcastle-upon-Tyne, Princess Mary Maternity Hospital, Jubilee-road, City-road.—Asst. R.M.O. £40.

Nottingham General Hospital.—H.P., H.S., also H.S. for Ear, Nose, and Throat Dept. Each £150.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. Asst. P., H.P., 2 H.S.'s, Obstet. H.S., also H.P. and Cas. O.

Royal Army Medical Corps.—20 Commissions.

Royal Northern Hospital, Holloway, N.—Anæsthetist. 10 guineas.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Non-Res. Cas. O. £150. Also Hon. P. to Out-patients.

Salford Royal Hospital.—Res. M.O. £175.

Sheffield Royal Infirmary.—Ophth. H.S., H.S., Asst. Cas. O., and H.S. to Ear, Nose, and Throat Dept. Each £60.

Stroud General Hospital.—H.S. £150.

University of London.—External Examiners.

West Bromwich and District Hospital.—Res. H.S. £220.

West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S., Res. Cas. O. Each £100.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacancy at Lyndhurst, Hampshire.

Births, Marriages, and Deaths.

BIRTHS.

JAMES.—On May 25th, at Quatre Bras, Wellington College, Berks, the wife of Dr. Alfred H. James of a daughter.

TANDY.—On May 27th, at Avenue Elmers, Surbiton, the wife of Dr. Oswald Tandy of a daughter.

WILLIAMS.—On May 29th, at 30, Cumberland-terrace, Regent's Park, to E. Christine Pillman Williams, M.B.E., M.B., B.S., and E. Ulysses Williams, O.B.E., M.R.C.S., of 128, Harley-street—a son.

MARRIAGES.

STEWART—MOORE.—On May 5th, at St. Paul's Church, Durban, James Lennox Stewart, M.B., B.S. Lond., to Florence Evelyn Moore, daughter of Mr. and Mrs. C. T. E. Moore, of Leslie, Transvaal.

DEATHS.

BLACK.—On May 25th, at St. Mary's Hospital, Patrick Black, M.R.C.S., L.R.C.P., of asphyxia due to acute broncho-pneumonia of both lungs, aged 43.

FRASER.—Forbes Fraser, C.B.E., F.R.C.S., of 5, The Circus, Bath, on May 28th, after five months' illness (pyæmia), aged 53.

WILKINSON.—On June 1st, at Osborne-villas, Windsor, Clement John Wilkinson, surgeon, in his 64th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Notes, Comments, and Abstracts.

CINCHONA BARK: ITS ECONOMIC AND HYGIENIC RELATIONSHIPS.

In the Chadwick lecture, delivered on June 4th at the Chelsea Physic Garden, Sir D. Prain discussed the Economic and Hygienic Relationships of Cinchona Bark and its Alkaloids. He said that European acquaintance with Peruvian bark had been traced to the cure in 1638 of a vicereine of Peru, who had contracted malaria, and whose name is perpetuated in that of the genus *Cinchona*. This bark became a forest product exploited in Loxa, now Southern Ecuador; it appeared first in a London pharmacopœia in 1677.

Exploitation of forest products may lead to narrowed supply, increased cost, and substitution. After 1753 the red bark of *C. succirubra*, from Chimborazo in Northern Ecuador, competed with the pale bark of *C. officinalis* from Loxa, which its exporters now termed crown bark. Europe thought red bark, although cheaper, as useful as crown; red became, and still remains, the only cinchona bark recognised as officinal. Trade substitution did not end here; the grey barks of *C. micrantha* and *C. nitida* from Huanuco in Central Peru competed with red, and their exploitation extended so as to include the yellow bark of *C. calisaya* from Bolivia. Scarcity of yellow bark led to the commercial exploitation of Colombian bark, obtained from *C. lancifolia*. As this was the last bark of importance to pharmacy that the rain forests of the Andes could supply, Europe undertook the cultivation of cinchona. Conversion of forest products into crops is subject to limiting factors. When labour is unprocurable, the crop must go where labour exists. France tried this crop in Algeria in 1849; Holland tried it in Java in 1851; England did so in Ceylon, the Nilgiris, and the Eastern Himalaya in 1861.

After labour comes environment. The soil and climate of Algeria did not suit cinchona; those of Java proved satisfactory. Ceylon and South India provided a suitable climate but a less satisfactory soil; in the Himalaya even the climate is marred owing to there being a distinct dry season.

Alkaloid Content of Barks.

After environment comes adaptability. Colombian bark is unwilling to thrive, even in Java. Red bark and grey prove accommodating, even in the Eastern Himalaya. Yellow bark can be planted in the Eastern Himalaya; it refuses to thrive in most parts of South India. There are limiting factors connected with utilisation as well as with production. Among the 40 cinchonas of the Andes, only six have proved of importance to pharmacy because of the alkaloid-content of their barks. Even in these important barks the alkaloid-content may vary naturally: 3 per cent. means a poor, 6 per cent. a good, 9 per cent. or over, a rich sample. Under cultivation, environment may induce further variation; barks "rich" in Java may be only "good" in South India or the Himalaya. This alkaloid-content factor has not inhibited the cultivation of any kind of cinchona; it has, however, rendered the careful selection of strains essential. The equally careful selection of kinds that, under existing conditions, is imperative, depends on the allied factor of alkaloid nature. The alkaloids of cinchona bark may be amorphous or crystallisable. All are remedial against malaria, the physiological action of the amorphous being more rapid than that of the crystallisable, and the efficacy of the crystallisable being accentuated when administered in an uncrystallised state. The chemical relationship of the amorphous to the crystallisable alkaloids is less clear than the inter-relationships of the crystallisable, whose remedial powers are believed to differ.

The crystallisable alkaloids in officinal cinchona bark were separated collectively for the first time in 1815. In 1820 this collective derivate yielded the specific alkaloid known as quinine; by 1852 it became known that, besides quinine, the "cinchonino" of 1815 includes other alkaloids—cinchonine, cinchonidine, and quinidine. The relative proportions of these alkaloids in particular kinds of cinchona remain unaffected by the variation in their percentages. In any sample of red bark one-half of the alkaloid-content is cinchonine, one-third quinine, one-sixteenth cinchonidine, only one-eightieth quinidine; the remainder—about one-eighth—is amorphous. But the relative proportions of these alkaloids differ in different kinds of cinchona bark. In red bark quinine forms but one-third of the alkaloid-content; in crown bark it forms three-fourths. In yellow bark the proportion of quinine is higher than in crown; in

grey bark that proportion is lower than in red. When quinine was first isolated in 1820 yellow bark was the kind of most importance to pharmacy; quinine therefore became, and still remains, the only cinchona alkaloid that is officinal. Being the officinal alkaloid, quinine is the one chiefly prescribed and the one chiefly separated from cinchona bark in the factory. The manufacturer, when purchasing bark, pays for it in terms of its quinine-content; the planter, when establishing a plantation, stocks it with the kind of cinchona his environment will permit to thrive that is richest in quinine. It costs the manufacturer about as much to work up, and it costs the planter about as much to produce, a bark poor from the quinine standpoint, as it does to produce and work up a rich bark. The cinchona planter still grows some red bark because this is still required by pharmacy for officinal "bark preparations." But the quinine manufacturer no longer purchases red bark or grey, and the planter no longer raises any grey, nor will he grow crown if the environment and adaptability factors do not inhibit cultivation of yellow bark. Such, then, are the economic relationships of cinchona bark and its alkaloids.

These relationships are sometimes misunderstood. It has been said that bark production was abandoned in Ceylon because "cinchona, planted without scientific advice, began to deteriorate." It is believed that this has happened in South India owing to the establishment of a cinchona monopoly by Java. What happened in Ceylon was that, when coffee cultivation came to an end, cinchona cultivation was taken in hand. Ceylon, like South India, had to grow crown bark. When Ceylon began to harvest her cinchona the prices received were lower than the prices paid to Java for yellow bark. Ceylon, without hesitation, gave up cinchona and cultivated tea. The same economic factor has led to the abandonment of cinchona cultivation by private enterprise in South India.

The So-called Cinchona Monopoly.

What has been described as a cinchona monopoly in Java is no more than a ***quinine*** monopoly. That monopoly is not the creation of Java; it is a consequence of the fact that yellow bark, which does not thrive in South India, grows better in Java than in any area, outside Bolivia, where it has been tried. The preference of the planter everywhere for yellow bark is a result of the fact that the quinine-maker pays a better price for that bark. The action of the quinine-maker is itself a result of the accident that the hygienic relationships of quinine differ from those of the other alkaloids of cinchona bark. These hygienic relationships themselves appear at times to be misunderstood. Quinine may be the most valuable of the crystallisable alkaloids of cinchona bark; it certainly is not more valuable than the amorphous. Were this appreciated, we might be spared complaints as to the world-shortage of quinine. The manufacturer, who ought to know, seems to think these complaints exaggerated. Meanwhile the Java planter is less than content with the price he receives for his bark and explains that he cannot market all that he grows. This suggests over-production rather than shortage. Java, so far from establishing a monopoly, must have lost control of the bark market.

One consequence of this particular misunderstanding has been that our own dominions are unable to produce all the cinchona bark and its alkaloids that they require. To some this does not appear a serious matter; shortage of a remedy for malaria lends vigour to the crusade against its cause. We can appreciate this feeling: "prevention is better than cure." But others feel that, until malaria prevention has become more general, the provision of a recognised remedy remains a public duty. Medicine therefore urges the State to extend the cultivation of cinchona, within the Empire, wherever it can be grown. The appeal of medicine might carry greater weight if fuller account were taken of the effect on the economic relationships of cinchona of its hygienic relationships for which she is ultimately responsible. Medicine does not overlook these entirely; she regards all the alkaloids of one kind of cinchona as worthy of use, so long as they remain unseparated from the bark. It is only after the alkaloids have been separated from their bark that medicine feels constrained to regard all but one of them as unimportant. Even if it were true that quinine be a more effective remedy for malaria than its companions, it remains for consideration whether the treatment of these other alkaloids as waste products of no value be wholly justifiable. It is to this action on the part of medicine that the economic relationships which now exist owe their origin. If medicine can see her way to some modification of her present attitude, conditions that hamper State action and distress us all might disappear; full advantage could then be taken of cinchona bark and its alkaloids.

HEALTH CONFESSIONS OF BUSINESS WOMEN.

ON the principle that the wearer of the pinching shoe is best able to locate the pain, the Provincial Board of Health of Ontario has organised an inquiry among business women by business women into their mode of life. In the autumn of 1922 the Board's Division of Industrial Hygiene offered prizes for the best letters by business women on their health problems and solutions. The advertisement of this competition yielded between 200 and 300 letters, and these have been carefully edited and annotated so that excessive overlapping is avoided. The problems discussed are classified under such headings as The Psychology of Health, Board and Lodging, and Personal Maintenance. Thanks to the anonymity of pen-names, great frankness was encouraged, and it is evident from a perusal of this compilation[1] that the correspondents threw themselves heart and soul into the task of pooling their experiences for each other's benefit. The result is a book full of the hard-earned philosophy of office life, a human record of tears and smiles. In the matter of food alone there is a great wealth of wisdom tapped. The business woman has found that she must not satisfy a beefsteak appetite with warmed-up maccaroni, and that at 4 o'clock every day "you can see the 'cream-puffers' giving out—just about the time the 'midday diners' are waking up." It has also been found wise to board where men are boarding, to eat what men are eating—meat, vegetables and bread, not pastry and tea. One candid correspondent writes: "Cheap, badly cooked, greasy food and rich things affect my complexion right off, and I'd rather have a cheap hat than a 'cheap' skin, wouldn't you?" With regard to bodily cleanliness and habits, little faith is pinned on the sponge bath which *sounds* all right, but in practice is apt to dwindle and dwindle. "No girl can be self-respecting or respected if there is a 'low-water mark' anywhere on her." Another correspondent expresses the same thought in the brief sentence, "I always try to dress so I could be run over any day." Another urges her fellow-workers not to expect a gold locket or a string of pearls to be a sufficient covering for the chest. And so the stream of helpful, candid advice runs on, one little trick of the trade or labour-saving advice after another being thrown into the "pool." There are many shrewd hints on the psychology of life, and a wondrously wise correspondent writes that she cultivates the friendship of at least one girl who giggles and has the capacity for seeing humour in all things. Again and again this piece of advice appears: "Never yield to self-pity." Another maxim on the same line of thought is: "You may be more unlucky than many people, but you are more lucky than many others, so don't forget it." And "our own troubles seem never so large after we have listened with understanding and sympathy to the greater troubles of others." A juvenile correspondent who signed herself "Dimples" proffered the following piece of advice, which was doubtless the outcome of a vast experience: "For bad temperedness and depression, I have found it a good idea to have a cold wash and change of clothing." Though this book has been compiled for the benefit of business women, it is one which every employer, male as well as female, should study carefully, for it reveals the soul of a large class in the community.

MEDICAL SUBSCRIPTIONS AND INCOME-TAX RETURNS.

To the Editor of THE LANCET.

SIR,—For some months past we have been in communication with the Board of Inland Revenue with a view to obtaining subscriptions to certain medical societies allowed as an expense against the income of medical practitioners. Many inspectors of taxes have refused to pass these items, but in one case with which we have been dealing we have now received a letter from the inspector concerned from which the following is an extract: "With reference to previous correspondence, I am now advised that by recent Board's Order the subscriptions to the British Medical Association, London and Counties Medical Protection Society, and British Medical Protection Society may be allowed as a business expense." It would appear from the above that our efforts have been successful, and medical practitioners should note that any subscription paid to the above societies may be included in their expenses.

We are, Sir, yours faithfully,

HARDY AND HARDY,
Taxation Consultants.

292, High Holborn, London, W.C., June 3rd, 1924.

[1] Health Confessions of Business Women by Business Women. Pp. 265. Copies can be obtained on application to the Division of Industrial Hygiene, Provincial Board of Health, Ontario.